THE UNIVERSITY OF ALABAMA

INVITATION FOR BID

ATTENTION: This is not an order. Read all instructions and terms and conditions carefully.

INVITATION NO.:	**T053039**
Issue Date:	**03/18/13**
Title:	**Fountain Vault**
Buyer:	**Robin Schmitt**
Phone:	**(205) 348-5385**
Email:	**rschmitt@fa.ua.edu**

RETURN ALL COPIES OF BIDS TO:
THE UNIVERSITY OF ALABAMA
PURCHASING DEPARTMENT
(Street Address) 1101 Jackson Ave Suite 3000
Tuscaloosa, Alabama 35401
OR
(Mailing Address) Box 870130
Tuscaloosa, Alabama 35487
PHONE: (205)348-5230 FAX: (205) 348-8706

Bid Responses may NOT be faxed or emailed.

IMPORTANT: SEALED BIDS MUST BE RECEIVED BY 4/3/2013 @ 2:00 P.M. CST TIME

Bid number and opening date must be clearly marked on the outside of all bid packages.

1. Pursuant to the provisions of the State of Alabama Competitive Bid Law, Section 41-16-20 and/or 39-2, rules and regulations adopted there under sealed bids will be received on the items noted herein by The University of Alabama Purchasing Department until the date and time stated above. In accordance with Alabama State Bid Law Section 41-16-27, where applicable, the University reserves the right to enter into negotiations within thirty (30) days of the bid opening.
2. The University's General Terms and Conditions and Instructions to Bidders, apply to this Solicitation and shall become a part of any contract issued hereunder.
3. For purposes of this Solicitation, the Solicitation documents shall consist of the following components:
   a) Invitation for Bid and any Addenda; b) General Terms and Conditions; c) Instructions to Bidders
   In the event that any provision of the component parts of the Solicitation conflicts with any provision of any other component parts, the component part first enumerated shall govern.
4. This Agreement and any disputes hereunder shall be governed by the laws of the State of Alabama without regard to conflict of law principles.

CERTIFICATION PURSUANT TO ACT NO. 2006-557

Alabama law (section 41-4-116, code of Alabama 1975) provides that every bid submitted and contract executed shall contain a certification that the vendor, contractor, and all of its affiliates that make sales for delivery into Alabama or leases for use in Alabama are registered, collecting, and remitting Alabama state and local sales, use, and/or lease tax on all taxable sales and leases in Alabama. **By submitting a response to this solicitation, the bidder is hereby certifying that they are in full compliance with Act No. 2006-557**; they are not barred from bidding or entering into a contract pursuant to 41-4-116, and acknowledges that The University of Alabama may declare the contract void if the certification is false.

DISCLOSURE STATEMENT

1. If you or any owner, officer, partner, board or director member, employee, or holder of more than 5% of the fair market value of your firm or any member of their households is an employee of The University of Alabama, this information must be included in your solicitation response. Failure to disclose this information in your response may result in the elimination of your proposal from evaluation.
2. If you or any owner, officer, partner, board or director member, employee, or holder of more than 5% of the fair market value of your firm or any member of their households is an employee of The University of Alabama; and you or your firm is awarded a contract as a result of this solicitation, then within ten (10) days after the contract is entered into, you agree to file a copy of that contract with the State of Alabama Ethics Commission in accordance with Code of Alabama, Section 36-25-11 and upon request by the University furnish evidence of such filing.
3. By accepting payments agreed to in any purchase order resulting from this bid, Contractor certifies that to its knowledge no University employee or official, and no family members of a University employee or official, will receive a benefit from these payments, except as has been previously disclosed, in writing, to the University on the Disclosure Statement of Relationship Between Contractors/Grantees and Employees/Officials of The University of Alabama.

AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST

I hereby swear (or affirm) under the penalty for false swearing as provided in Code of Alabama 6-5-180 that

1. In accordance with Code of Alabama Section 41-16-25, amended 1975 that the attached response has been arrived at independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other vendor of materials, supplies, equipment or services described in the Invitation for Bids, designed to limit independent bidding or competition;
2. The contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids.
3. The bidder is legally entitled to enter into contracts with The University of Alabama and is not in violation of any prohibited conflict of interest, including those prohibited by the Code of Alabama 13A-10-62, as amended 1975.
4. I have fully informed myself regarding the accuracy of the statement made above.

THIS AREA MUST BE COMPLETED

DELIVERY AFTER RECEIPT OF ORDER:	**NAME OF COMPANY:**	**PHONE:**
FEDERAL EMPLOYER ID NO.:	**ADDRESS:**	**FAX:**
PAYMENT TERMS:	**ADDRESS:**	**E-MAIL:**
SHIPPING TERMS: **F.O.B. DESTINATION–PREPAID AND ALLOWED**	**CITY, STATE & ZIP CODE:**	**DATE:**
QUOTE VALID UNTIL:	**SIGNATURE:**	**Typed/Printed Name of Signor**

SIGNATURE REQUIRED: This bid cannot be considered valid unless signed and dated by an authorized agent of the bidder. Type or print the information requested in the spaces provided.

Please Note New Bid Specification and Requirements Indicated Below

State of Alabama Immigration Law

If the successful bidder is located in Alabama or employs an individual or individuals within the State of Alabama, the successful bidder shall provide a copy of its Employment Eligibility Verification (E-Verify) company profile. To expedite the ordering process, this document may be submitted with the bid response.

If the successful bidder is not located in the State of Alabama and does not employ an individual or individuals within the State of Alabama, the successful bidder shall complete and return the Certification of Compliance form included with this Request for Price Quotation (E-Verify company profile is not required). To expedite the ordering process, this document may be submitted with the bid response.

If you are not currently enrolled in E-Verify, follow these instructions:

- Log onto www.uscis.gov/everify
- Click "Getting Started" for information about the program, requirements, and enrollment process.
- Click "Enroll in E-Verify" and begin enrollment process.
- When enrollment process is complete, click "Edit Company Profile" and print this one-page document.
- This one-page document must be submitted prior to a contract or purchase order being issued.
- For further assistance please consult the E-Verify Quick Reference Guide.

If you have previously enrolled in E-Verify, follow these instructions:

- Log onto www.uscis.gov/everify
- Click "Edit Company Profile" and print this one-page document.
- This one-page document must be submitted prior to a contract or purchase order being issued.

The following has been added to the University of Alabama's General Terms and Conditions

35. State of Alabama Immigration Law

Pursuant to the State of Alabama Immigration Law, by signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

INVITATION FOR BID

The University of Alabama requests sealed bids as per attached general and technical specifications or equal unless otherwise specified in the Special Conditions.

All Bidders submitting a bid must read all specifications carefully and respond accordingly. Failure to do so may eliminate your bid from consideration due to non-compliance.

1.0 GENERAL SPECIFICATIONS

1.1 All bid responses, technical information and any other attachments furnished to The University of Alabama in response to this request for quotation must be submitted in duplicate (THE ORIGINAL BID AND ATTACHMENTS WITH ORIGINAL SIGNATURE AND ONE EXACT COPY OF THE ENTIRE BID RESPONSE). Bidders who fail to follow this format may be disqualified from the evaluation and award phase of this bid.

1.2 The stated requirements appearing elsewhere in this solicitation shall become a part of the terms and conditions of any resulting contract. Any deviations there from must be specifically defined. If accepted by the University, the deviations shall become part of the contract, but such deviations must not be in conflict with the basic nature of this solicitation.

Note: Bidders shall not submit their standard terms and conditions or purchase order terms as exceptions to or modification of the terms and conditions of this solicitation. Each exception to or modification of a University term and condition shall be individually listed by the bidder. Failure to follow this instruction may result in the determination that a bid submission is non-responsive to a solicitation and the rejection of that bid.

1.3 The issuance of a University Purchase Order (P#) or a signed Contract document is required to constitute a contract between the successful Bidder and the University which shall bind the successful Bidder to furnish and deliver the commodities ordered at the prices, terms and conditions quoted and in accordance with the specifications of this Solicitation as well as the terms and conditions of the University's Purchase Order or Contract. No shipments are to be made to The University of Alabama without the issuance of a Purchase Order (P#). (Bidders are not to accept or ship items against a requisition number "R" #.)

1.4 Any questions concerning these specifications should be directed to the Buyer listed on the signature page.

1.5 No department, school or office at the University has the authority to solicit or receive official Solicitations nor authorize Solicitation or Contract changes other than the Purchasing Department. All solicitations are issued under the direct supervision of the Associate Director for Purchasing and in complete accordance with the State of Alabama Bid Law, Section 41-16-20 and University policies and procedures.

1.6 The terms and conditions included in this Solicitation along with any addenda, any University contract and/or University purchase order(s) issued referencing this Solicitation, the University's General Terms and Conditions, Instructions to Bidders shall constitute the entire and exclusive Contract between the University and the successful Bidder.

1.7 **State of Alabama Immigration Law**

If the successful bidder is located in Alabama or employs an individual or individuals within the State of Alabama, the successful bidder shall provide a copy of its Employment Eligibility Verification (E-Verify) company profile. To expedite the ordering process, this document may be submitted with the bid response.

If the successful bidder is not located in the State of Alabama and does not employ an individual or individuals within the State of Alabama, the successful bidder shall complete and return the Certification of Compliance form included with this Request for Price Quotation (E-Verify company profile is not required). To expedite the ordering process, this document may be submitted with the bid response.

If you are not currently enrolled in E-Verify, follow these instructions:

- Log onto www.uscis.gov/everify
- Click “Getting Started” for information about the program, requirements, and enrollment process.
- Click “Enroll in E-Verify” and begin enrollment process.
- When enrollment process is complete, click “Edit Company Profile” and print this one-page document.
- This one-page document must be submitted prior to a contract or purchase order being issued.
- For further assistance please consult the E-Verify Quick Reference Guide.

If you have previously enrolled in E-Verify, follow these instructions:

- Log onto www.uscis.gov/everify
- Click “Edit Company Profile” and print this one-page document.
- This one-page document must be submitted prior to a contract or purchase order being issued.

2.0 QUALIFICATIONS AND STANDARDS

Due to the importance of maintaining a safe University environment, it is imperative that the successful bidder meet certain qualifications that will guarantee The University of Alabama the successful Bidder is qualified to furnish and deliver products, equipment and services or furnish, deliver, install, service and/or repair equipment whichever is applicable as required in this Solicitation. In order for Bidders to qualify, the following requirements must be fulfilled:

2.1 The Bidder must provide, in writing, a statement that the Bidder has been regularly engaged in business for a minimum three (3) years engaging in furnishing, delivering, servicing, repairing and installing, equipment, goods, or services required in this Solicitation. In lieu of the minimum number of years in business, a performance bond may be submitted in the amount of one hundred (100 %) per cent of the contract price. This bond will be used to secure the completion of the project should the successful Bidder default for any reason. Failure to comply with this requirement may eliminate your bid response from consideration.

2.2 Each bidder required to provide a bond, shall submit a letter from a bonding agent licensed to do business in the State of Alabama stating that if the bidding company is the successful bidder, said bonding agent will furnish a 100% performance and payment bond covering and including products and service for the duration of the contract period. Said bond shall be subject to the approval and acceptance of The University of Alabama. The bond must be furnished to the University Purchasing Department within forty-eight (48) hours after receipt of the purchase order. The premium of the bond shall be paid by the successful bidder. Failure to provide the bond letter or bond will eliminate your bid from consideration in the bid award.

3.0 REFERENCES

References must include at least three (3) other universities, institutions or businesses, which the bidder has successfully provided products, services or installation of equipment similar to those required in this Solicitation in terms of manufacturer, size, features, service or type of installation. The references must include company name, address, project/delivery date, contact name, phone number, and email address.

4.0 PRODUCT SPECIFICATIONS

Specify all terms and conditions of the warranties associated with your products with your bid response.

5.0 PRICE QUOTATION

5.1 IMPORTANT: It is required that the PRICE QUOTATION SHEET(S) furnished with this Request for Price Quotation be completed and submitted with your proposal. DO NOT send generated price lists as your bid. Failure to comply with this request may eliminate your bid from consideration in the bid award.

5.2 All prices shall be quoted furnish and install (if applicable) FOB The University of Alabama, Tuscaloosa, AL 35487 prepay and allowed. Unit prices quoted must include any and all shipping and handling charges. Any freight claims will be the responsibility of the Bidder. The successful Bidder must transport at the time of set-up, the equipment and supplies necessary for this installation to campus. No direct shipments will be accepted.

5.3 It is the Bidder's responsibility to verify any information, measurements and obtain any clarifications prior to submitting the bid response. The University is not liable for any errors or misinterpretations made by the Bidder in response to this Solicitation.

5.4 The successful Bidder under the specifications required in this Solicitation shall furnish at its expense all equipment, labor, tools, supplies, transportation, insurance and other expenses necessary to fully perform any phase of the requirements of this Solicitation.

5.5 Quote prices firm for a period of ninety (90) days following the bid opening date unless otherwise stated in the Special Conditions. Bids that do not guarantee pricing firm for this period may be eliminated. Failure to quote the term for which your prices will remain firm may eliminate your bid from consideration.

5.6 The quoted price must include but not be limited to all cables, wires, connectors, etc. to make a complete functioning unit unless specifically stated in the special conditions.

5.7 Include with your bid response complete details of your company's Return Merchandise policy, including, but not limited to, amount of any restocking fee required, procedures, limitations, contact person and phone number. While the University does not enter into any purchase with the intent to return items ordered, we do require this information be included with your bid response. Failure to include this information may be grounds for elimination of your bid from consideration.

6.0 DELIVERY, INSTALLATION AND TRAINING REQUIREMENTS

6.1 Proposed delivery dates shall be stated in number of calendar days after receipt of order.

6.2 All items must be delivered directly to the University by the successful Bidder and placed according to the instructions supplied by the University.

7.0 INSURANCE

7.1 See General Terms and Conditions for general Insurance Requirements, Additional Insurance requirements may be listed in the Special Conditions Section.

7.2 The successful Bidder shall provide the University Purchasing Department a certificate of insurance listing the required types of insurance and minimum liabilities specified in the General Terms and Conditions unless otherwise modified in the Special Conditions.

7.3 The certificate must be received by The University of Alabama Purchasing Department within three (3) days of request. Failure to comply with this request may eliminate your bid from consideration in the bid award.

7.4 The University reserves the right to terminate any resulting contract, if the Bidder fails to keep these policies in force for the above amounts or for the duration of the contract period.

7.5 The umbrella policy must be listed on the insurance certificate with an explanation of the coverage.

8.0 RESTRICTIONS ON COMMUNICATIONS WITH UNIVERSITY STAFF

From the issue date of this Solicitation until a Contractor is selected and a contract award is made, Bidders are not allowed to communicate about the subject of the IFB with any University administrator faculty, staff, or members of the Board of Trustees except:

- The Purchasing Department representative, any University Purchasing Official representing the University administration, or others authorized in writing by the Purchasing Office and
- University Representatives during Bidder presentations.

If violation of this provision occurs, the University reserves the right to reject the Bidder's response to this Solicitation.

9.0 SPECIAL CONDITIONS

9.1 The University of Alabama is requesting sealed bids to establish a contract upon date of award to Furnish and Deliver a Fountain Vault per attached general and technical specifications.

9.2 The Fountain Vault must be delivered by July 1, 2013.

9.3 **THIS BID IS FOR PRODUCT ONLY. The University of Alabama will purchase the fountain and the equipment from the manufacturer or distributor and assign a contractor separately to coordinate delivery and sequencing.**

9.4 Drawings and general provisions of the Contract, including specifications and summary of work schedule expected are attached in this bid request.

9.5 The University of Alabama intends to assign this contract to a General Contractor to coordinate and schedule delivery. The University of Alabama intends to issue a purchase order to the awarded vendor and make payment for product.

9.6 Any questions regarding this bid must be emailed to rschmitt@fa.ua.edu by end of day Wednesday March 20, 2013.

10.0 QUOTE SHEET

SCOPE: **The University of Alabama is requesting sealed bids to establish a contract upon date of award to Furnish and Deliver a Fountain Vault and associated equipment as per attached drawings and general and technical specifications.**

IMPORTANT: **The quoted costs must include all shipping and handling charges. Quote prices FOB The University of Alabama Prepaid and Allowed delivered unless otherwise noted in Solicitation.**

QUOTE THE FOLLOWING:

SECTION 1:

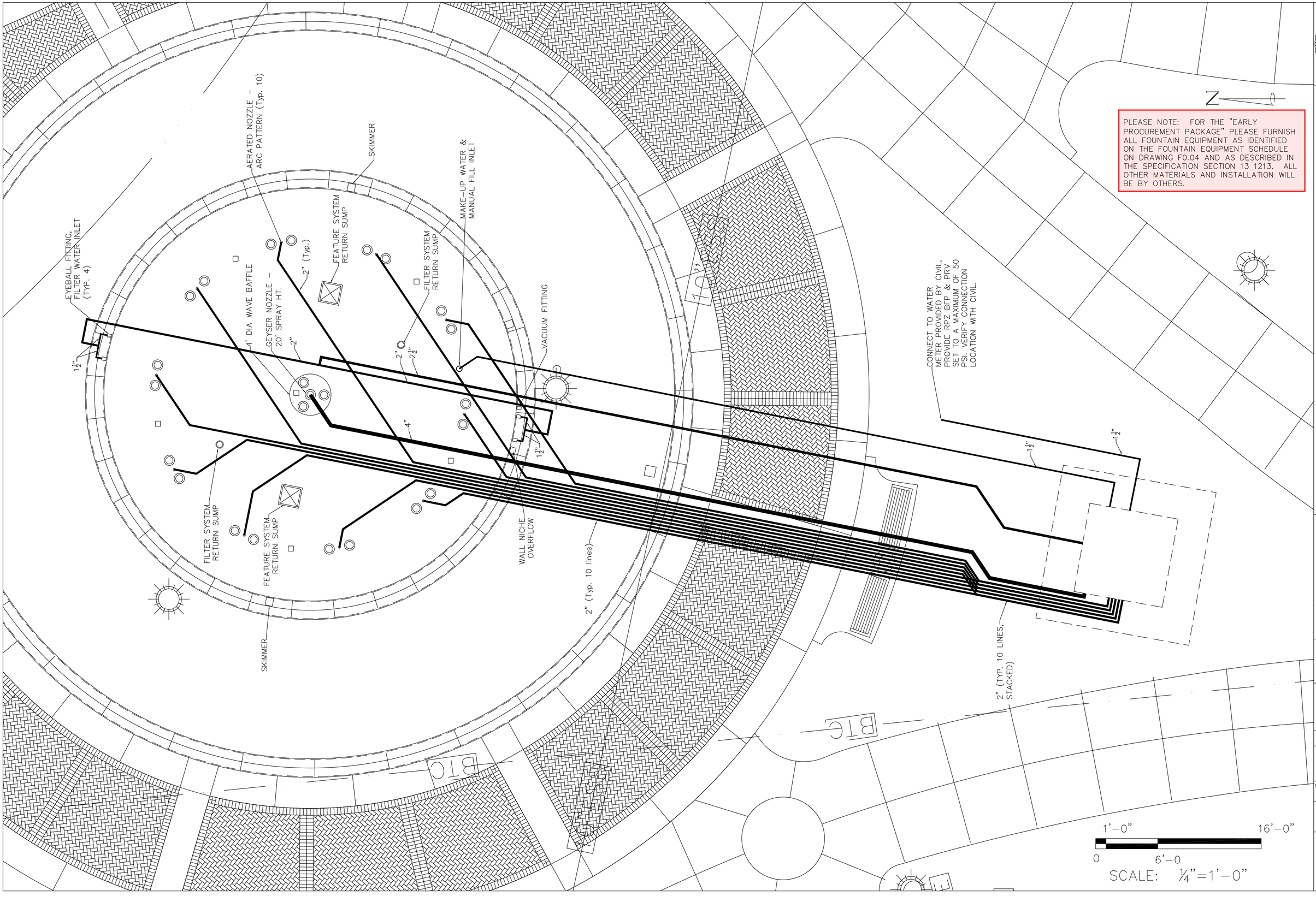
DESCRIPTION	TOTAL COST
Fountain Vault and associated equipment (see attached drawings and specifications)	$_____

SECTION 2: WARRANTY INFORMATION:

Can you meet the delivery requirement of 07/01/2013? YES _____ NO _____

If no please explain _____

Please indicate if you can accept ACH payments (direct deposit): YES _____ NO _____



PLEASE NOTE: FOR THE "EARLY PROCUREMENT PACKAGE" PLEASE FURNISH ALL FOUNTAIN EQUIPMENT AS IDENTIFIED ON THE FOUNTAIN EQUIPMENT SCHEDULE ON DRAWING F0.04 AND AS DESCRIBED IN THE SPECIFICATION SECTION 13 1213. ALL OTHER MATERIALS AND INSTALLATION WILL BE BY OTHERS.

STATE OF ALABAMA
DAVIS ARCHITECTS
2413
NEIL E. DAVIS
REGISTERED ARCHITECT

SCIENCE & ENGINEERING COMPLEX
SHELBY FOUNTAIN & SITE IMPROVEMENTS
THE UNIVERSITY OF ALABAMA ; TUSCALOOSA, ALABAMA
UA PROJECT # 000-12-177

DAVIS ARCHITECTS

DAVIS ARCHITECTS, INC.
120 TWENTY THIRD STREET SOUTH
205.322.7482
BIRMINGHAM AL 35233
FAX 322.7485
WEBSITE DADOT.COM

KEY PLAN

REV	DATE	DESCRIPTION

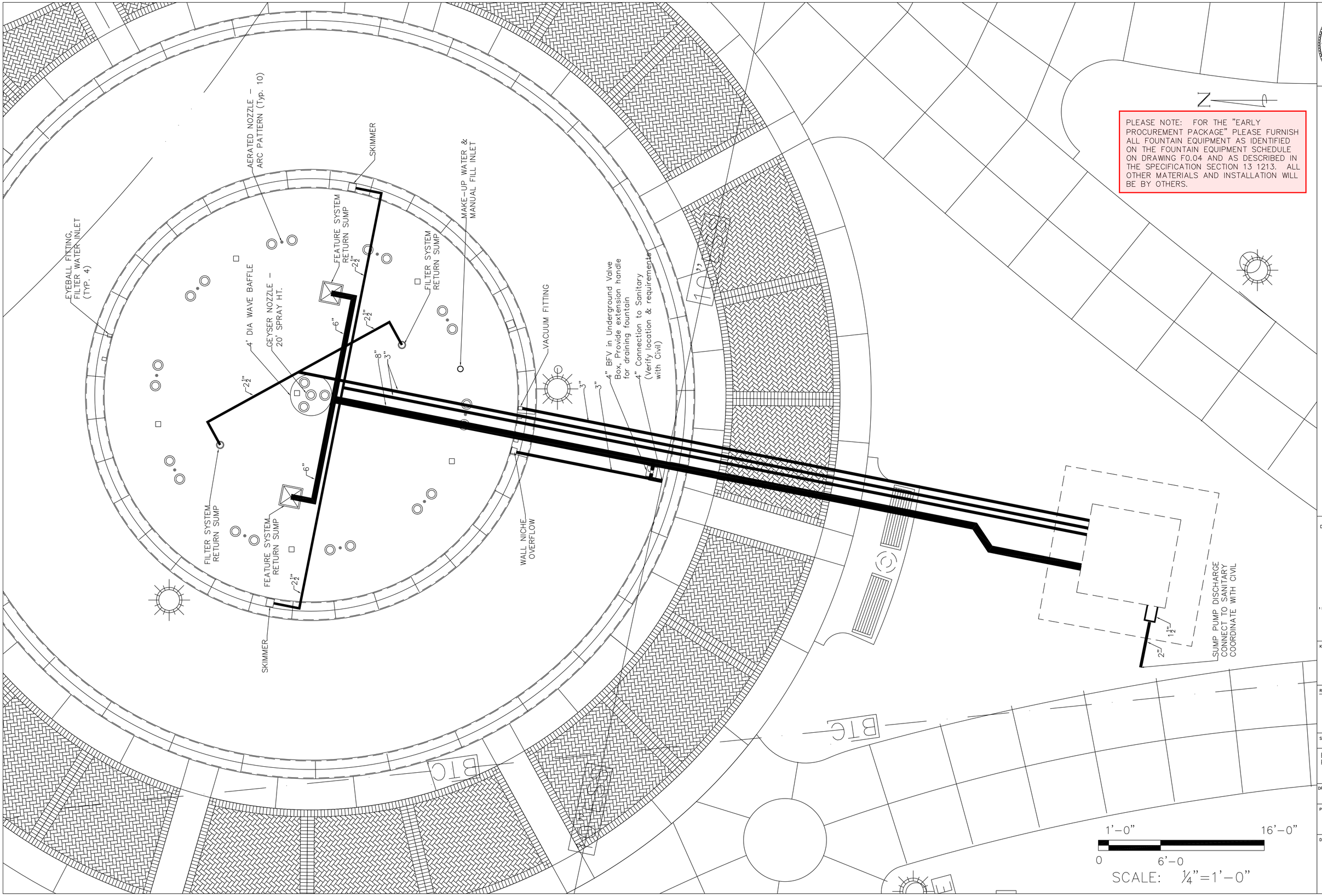
SHEET TITLE
SUPPLY PIPING

EARLY PROCUREMENT PACKAGE
MARCH 15, 2013

DRAWN	CHECKED	APPROVED

PROJECT NO.
3684.01

DRAWING NO.
F0.01



PLEASE NOTE: FOR THE "EARLY PROCUREMENT PACKAGE" PLEASE FURNISH ALL FOUNTAIN EQUIPMENT AS IDENTIFIED ON THE FOUNTAIN EQUIPMENT SCHEDULE ON DRAWING F0.04 AND AS DESCRIBED IN THE SPECIFICATION SECTION 13 1213. ALL OTHER MATERIALS AND INSTALLATION WILL BE BY OTHERS.

STATE OF ALABAMA
DAVIS ARCHITECTS
2413
NEIL E. DAVIS
REGISTERED ARCHITECT

SCIENCE & ENGINEERING COMPLEX
SHELBY FOUNTAIN & SITE IMPROVEMENTS

THE UNIVERSITY OF ALABAMA ; TUSCALOOSA, ALABAMA
UA PROJECT # 000-12-177

THE UNIVERSITY OF ALABAMA

DAVIS ARCHITECTS

DAVIS ARCHITECTS, INC.
120 TWENTY THIRD STREET SOUTH
205.322.7482
BIRMINGHAM AL 35233
FAX 322.7485
WEBSITE DADOT.COM

KEY PLAN

REV	DATE	DESCRIPTION

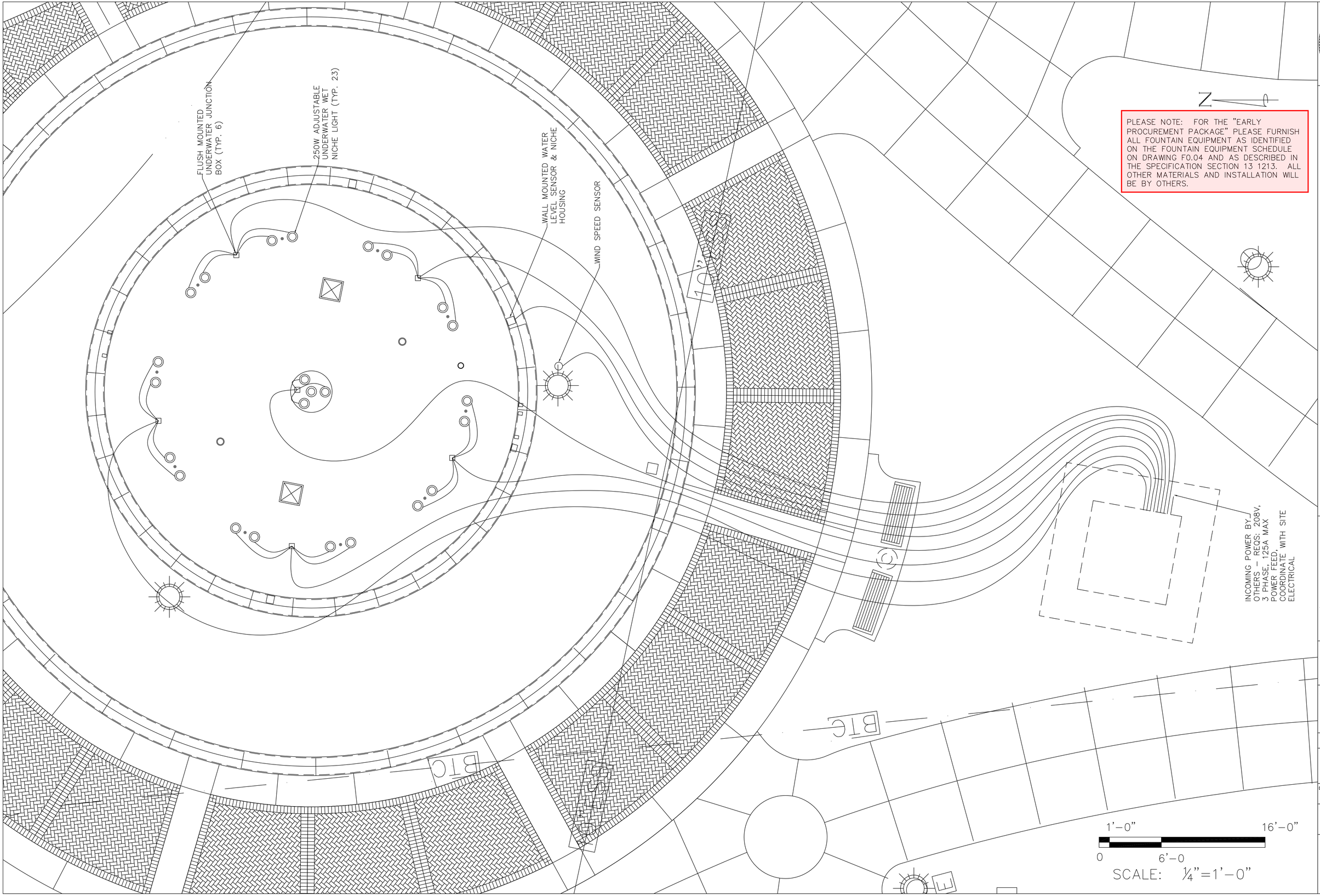
SHEET TITLE
RETURN PIPING

EARLY PROCUREMENT PACKAGE
MARCH 15, 2013

DRAWN	CHECKED	APPROVED

PROJECT NO.
3684.01

DRAWING NO.
F0.02


FLUSH MOUNTED UNDERWATER JUNCTION BOX (TYP. 6)
250W ADJUSTABLE UNDERWATER WET NICHE LIGHT (TYP. 23)
WALL MOUNTED WATER LEVEL SENSOR & NICHE HOUSING
WIND SPEED SENSOR
INCOMING POWER BY OTHERS – REQS: 208V, 3 PHASE, 125A MAX POWER FEED, COORDINATE WITH SITE ELECTRICAL
B1C
B1C
B1C
1'–0"
16'–0"
0
6'–0
SCALE: ¼"=1'–0"

PLEASE NOTE: FOR THE "EARLY PROCUREMENT PACKAGE" PLEASE FURNISH ALL FOUNTAIN EQUIPMENT AS IDENTIFIED ON THE FOUNTAIN EQUIPMENT SCHEDULE ON DRAWING F0.04 AND AS DESCRIBED IN THE SPECIFICATION SECTION 13 1213. ALL OTHER MATERIALS AND INSTALLATION WILL BE BY OTHERS.

STATE OF ALABAMA
DAVIS ARCHITECTS
2413
NEIL E. DAVIS
REGISTERED ARCHITECT

SCIENCE & ENGINEERING COMPLEX
SHELBY FOUNTAIN & SITE IMPROVEMENTS
THE UNIVERSITY OF ALABAMA ; TUSCALOOSA, ALABAMA
UA PROJECT # 000-12-177

DAVIS ARCHITECTS

DAVIS ARCHITECTS, INC.
120 TWENTY THIRD STREET SOUTH
205.322.7482
BIRMINGHAM AL 35233
FAX 322.7495
WEBSITE DADOT.COM

KEY PLAN

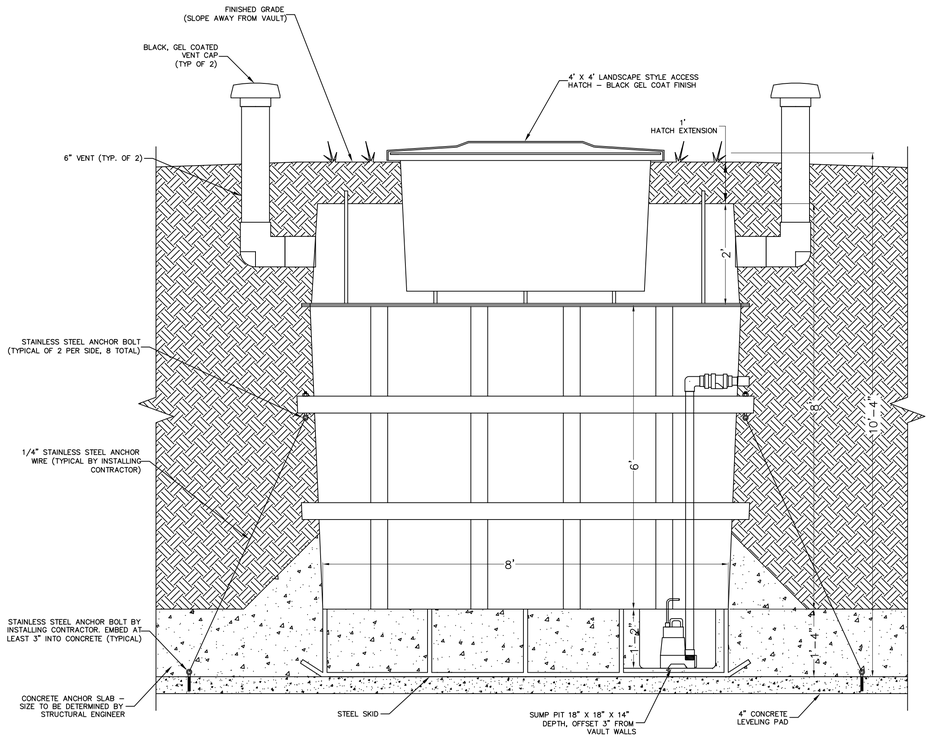
REV	DATE	DESCRIPTION

SHEET TITLE
ELECTRICAL DIAGRAM
EARLY PROCUREMENT PACKAGE
MARCH 15, 2013

DRAWN	CHECKED	APPROVED

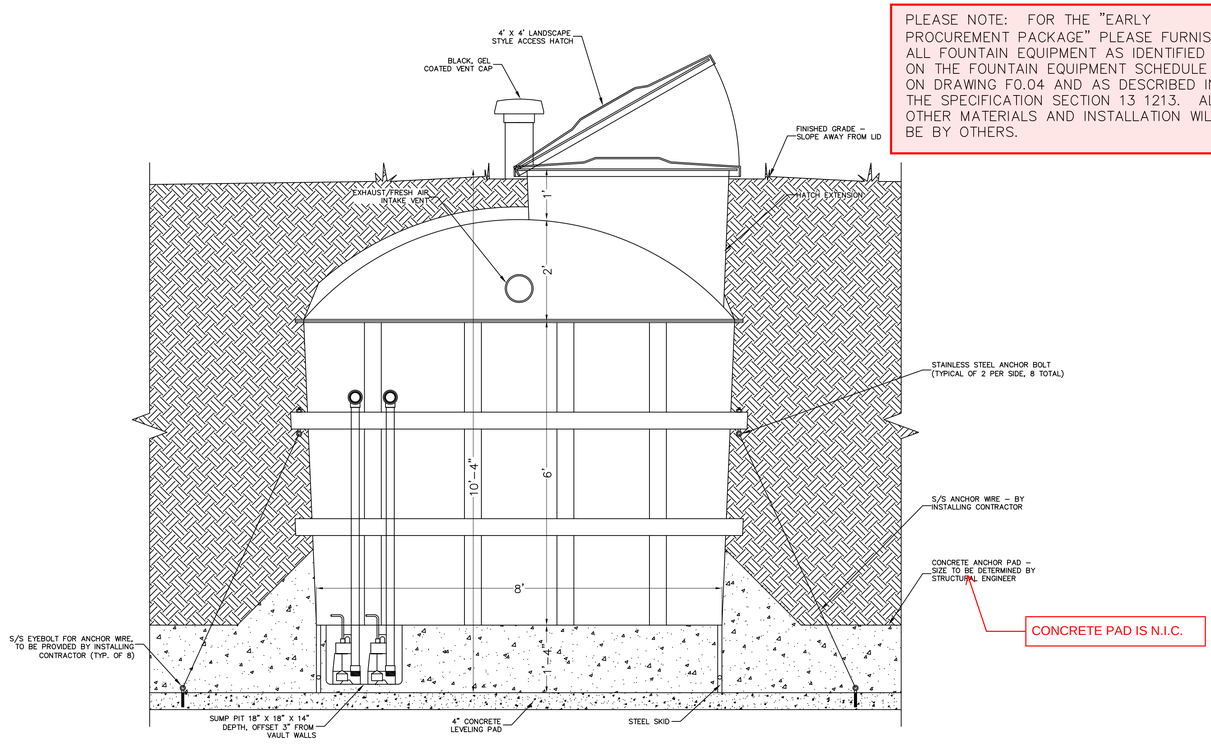
PROJECT NO.
3684.01

DRAWING NO.
F0.03


FINISHED GRADE (SLOPE AWAY FROM VAULT)
BLACK, GEL COATED VENT CAP (TYP OF 2)
4' X 4' LANDSCAPE STYLE ACCESS HATCH – BLACK GEL COAT FINISH
1' HATCH EXTENSION
6" VENT (TYP. OF 2)
2'
STAINLESS STEEL ANCHOR BOLT (TYPICAL OF 2 PER SIDE, 8 TOTAL)
1/4" STAINLESS STEEL ANCHOR WIRE (TYPICAL BY INSTALLING CONTRACTOR)
10'-4"
6'
8'
STAINLESS STEEL ANCHOR BOLT BY INSTALLING CONTRACTOR. EMBED AT LEAST 3" INTO CONCRETE (TYPICAL)
CONCRETE ANCHOR SLAB – SIZE TO BE DETERMINED BY STRUCTURAL ENGINEER
STEEL SKID
SUMP PIT 18" X 18" X 14" DEPTH, OFFSET 3" FROM VAULT WALLS
4" CONCRETE LEVELING PAD

A F0.04 DFST–6400 8' X 8' SUBTERRANEAN EQUIPMENT VAULT – ELEVATION VIEW

SCALE: N.T.S.

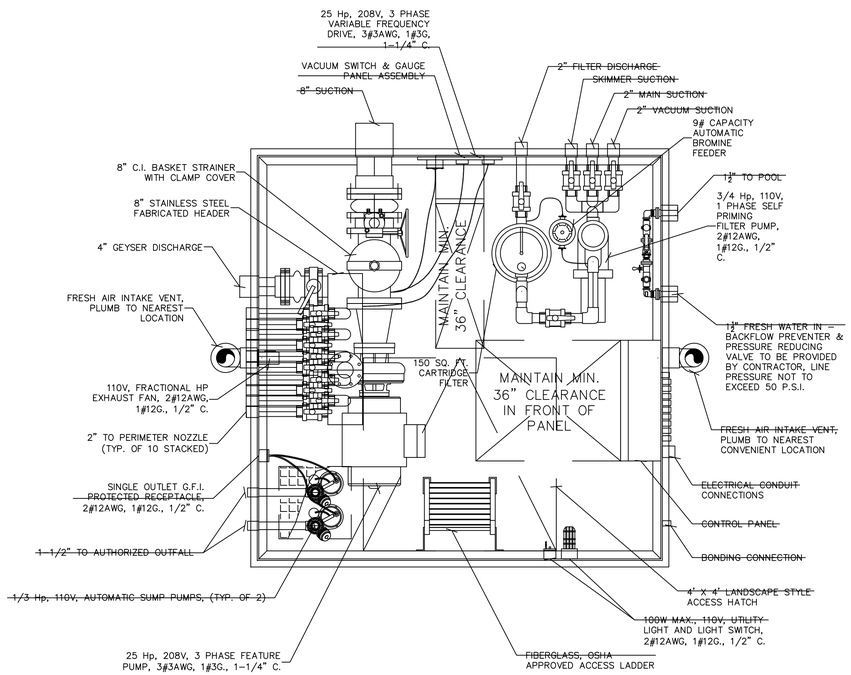

4' X 4' LANDSCAPE STYLE ACCESS HATCH
BLACK, GEL COATED VENT CAP
FINISHED GRADE – SLOPE AWAY FROM LID
EXHAUST/FRESH AIR INTAKE VENT
1'
HATCH EXTENSION
2'
STAINLESS STEEL ANCHOR BOLT (TYPICAL OF 2 PER SIDE, 8 TOTAL)
10'-4"
6'
S/S ANCHOR WIRE – BY INSTALLING CONTRACTOR
CONCRETE ANCHOR PAD – SIZE TO BE DETERMINED BY STRUCTURAL ENGINEER
8'
S/S EYEBOLT FOR ANCHOR WIRE, TO BE PROVIDED BY INSTALLING CONTRACTOR (TYP. OF 8)
SUMP PIT 18" X 18" X 14" DEPTH, OFFSET 3" FROM VAULT WALLS
4" CONCRETE LEVELING PAD
STEEL SKID

B F0.04 DFST–6400 8' X 8' SUBTERRANEAN EQUIPMENT VAULT – ELEVATION VIEW

SCALE: N.T.S.

PLEASE NOTE: FOR THE "EARLY PROCUREMENT PACKAGE" PLEASE FURNISH ALL FOUNTAIN EQUIPMENT AS IDENTIFIED ON THE FOUNTAIN EQUIPMENT SCHEDULE ON DRAWING F0.04 AND AS DESCRIBED IN THE SPECIFICATION SECTION 13 1213. ALL OTHER MATERIALS AND INSTALLATION WILL BE BY OTHERS.

CONCRETE PAD IS N.I.C.


25 Hp, 208V, 3 PHASE VARIABLE FREQUENCY DRIVE, 3#3AWG, 1#3G, 1–1/4" C.
VACUUM SWITCH & GAUGE PANEL ASSEMBLY
8" SUCTION
2" FILTER DISCHARGE
SKIMMER SUCTION
2" MAIN SUCTION
2" VACUUM SUCTION
9# CAPACITY AUTOMATIC BROMINE FEEDER
8" C.I. BASKET STRAINER WITH CLAMP COVER
8" STAINLESS STEEL FABRICATED HEADER
1½" TO POOL
3/4 Hp, 110V, 1 PHASE SELF PRIMING FILTER PUMP, 2#12AWG, 1#12G., 1/2" C.
4" GEYSER DISCHARGE
MAINTAIN MIN. 36" CLEARANCE
FRESH AIR INTAKE VENT, PLUMB TO NEAREST LOCATION
150 SQ. FT. CARTRIDGE FILTER
1½" FRESH WATER IN – BACKFLOW PREVENTER & PRESSURE REDUCING VALVE TO BE PROVIDED BY CONTRACTOR, LINE PRESSURE NOT TO EXCEED 50 P.S.I.
MAINTAIN MIN. 36" CLEARANCE IN FRONT OF PANEL
110V, FRACTIONAL HP EXHAUST FAN, 2#12AWG, 1#12G., 1/2" C.
2" TO PERIMETER NOZZLE (TYP. OF 10 STACKED)
FRESH AIR INTAKE VENT, PLUMB TO NEAREST CONVENIENT LOCATION
SINGLE OUTLET G.F.I. PROTECTED RECEPTACLE, 2#12AWG, 1#12G., 1/2" C.
ELECTRICAL CONDUIT CONNECTIONS
CONTROL PANEL
1-1/2" TO AUTHORIZED OUTFALL
BONDING CONNECTION
1/3 Hp, 110V, AUTOMATIC SUMP PUMPS, (TYP. OF 2)
4' X 4' LANDSCAPE STYLE ACCESS HATCH
100W MAX., 110V, UTILITY LIGHT AND LIGHT SWITCH, 2#12AWG, 1#12G., 1/2" C.
25 Hp, 208V, 3 PHASE FEATURE PUMP, 3#3AWG, 1#3G., 1–1/4" C.
FIBERGLASS, OSHA APPROVED ACCESS LADDER

C F0.04 DFST–6400 8' X 8' SUBTERRANEAN EQUIPMENT VAULT – PLAN VIEW

SCALE: N.T.S.

EQUIPMENT SCHEDULE

QTY	EQUIPMENT MODEL NO.	DESCRIPTION	CONNECTION SIZE/TYPE
1	DFGN-300	GEYSER NOZZLE	3" NPT
1	DFASU-300	SWIVEL	3" NPT
1	DFPN-300	WATERSTOP FITTING	3" NPT
1	DFWSB-4800	WAVE BAFFLE, BLACK POWDER COAT FINISH	N/A
10	DFFJ-125WLI	FOAM JET NOZZLE-WATER LEVEL INDEPENDENT, MACHINED SYNTHETIC CONSTRUCTION	1-1/4" NPT
10	DFASU-125	SWIVEL	1-1/4" NPT
10	DFPN-125	WATERSTOP FITTING	1-1/4" NPT
1	DFSO-300SW	WALL NICHE OVERFLOW	3" NPT
1	FURNISHED BY INSTALLER	4" BFV IN UG VALVE BOX, EXT HANDLE	4" NPT
2	DFSS-1824-6	FEATURE RETURN SUMP W/ AV PLATE	6" SLIP
2	DFSK-150-2	SKIMMER	1-1/2" SLIP
1	DFVF-150	VACUUM FITTING	1-1/2" NPT
2	DFSS-1214-2	FILTER RETURN SUMP W/ AV PLATE	2" SLIP
4	DFEF-150	FILTER SUPPLY EYEBALL FITTINGS WITH WATERSTOP FITTING, CAST BRONZE AND MACHINED BRASS CONSTRUCTION	1-1/2" NPT
1	DFDF-150	MAKE-UP WATER & MANUAL FILL INLET FLOOR FITTING W/ AV PLATE	1-1/2" NPT
1	DFSO-SW-A	NICHE WATER LEVEL SENSOR	SEE DETAIL
1	DFAN-100	WIND SPEED SENSOR	SEE DETAIL
23	DFUL-250N	FLUSH MT UW LIGHTS, 250W W/LAMP	SEE DETAIL
5	DFJB-4DB	FLUSH MT UW J BOX	SEE DETAIL
1	DFJB-3DB	FLUSH MT UW J BOX	SEE DETAIL
12	DFPC-2123	POTTING COMPOUND	N/A
1	DFST-6400	8' X 8' SUBTERRANEAN EQUIPMENT VAULT	MULTIPLE, SEE DETAIL
1	DFWMUA-100-SS	1-1/2" AUTOMATIC MAKE-UP WATER ASSEMBLY WITH 1" SOLENOID VALVE	MOUNTED IN VAULT

STATE OF ALABAMA – DAVIS ARCHITECTS – 2413 – NEIL E. DAVIS – REGISTERED ARCHITECT

SCIENCE & ENGINEERING COMPLEX
SHELBY FOUNTAIN & SITE IMPROVEMENTS
THE UNIVERSITY OF ALABAMA ; TUSCALOOSA, ALABAMA
UA PROJECT # 000–12–177

DAVIS ARCHITECTS

DAVIS ARCHITECTS, INC.
120 TWENTY THIRD STREET SOUTH
205.323.7482
BIRMINGHAM AL 35233
FAX 323.7483
WEBSITE DADOT.COM

KEY PLAN

REV	DATE	DESCRIPTION

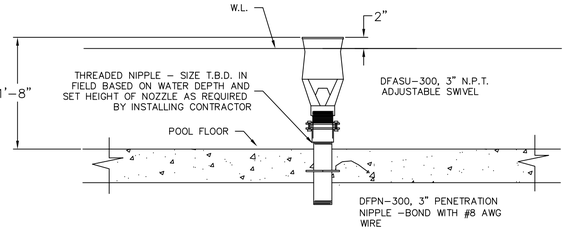
SHEET TITLE
VAULT DETAILS

EARLY PROCUREMENT PACKAGE
MARCH 15, 2013

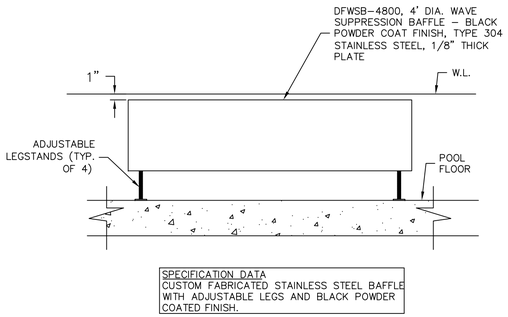
DRAWN	CHECKED	APPROVED

PROJECT NO.
3684.01

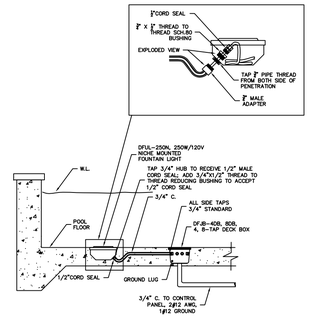
DRAWING NO.
F0.04


W.L.
2"
1'-8"
THREADED NIPPLE - SIZE T.B.D. IN FIELD BASED ON WATER DEPTH AND SET HEIGHT OF NOZZLE AS REQUIRED BY INSTALLING CONTRACTOR
DFASU-300, 3" N.P.T. ADJUSTABLE SWIVEL
POOL FLOOR
DFPN-300, 3" PENETRATION NIPPLE -BOND WITH #8 AWG WIRE

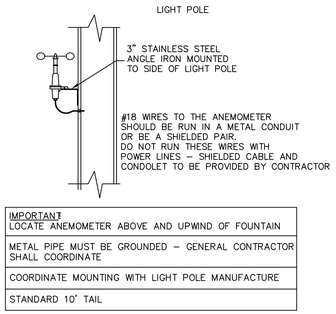
A F0.05 DFGN-300 GEYSER NOZZLE
SCALE: N.T.S.


DFWSB-4800, 4' DIA. WAVE SUPPRESSION BAFFLE - BLACK POWDER COAT FINISH, TYPE 304 STAINLESS STEEL, 1/8" THICK PLATE
1"
W.L.
ADJUSTABLE LEGSTANDS (TYP. OF 4)
POOL FLOOR
SPECIFICATION DATA
CUSTOM FABRICATED STAINLESS STEEL BAFFLE WITH ADJUSTABLE LEGS AND BLACK POWDER COATED FINISH.

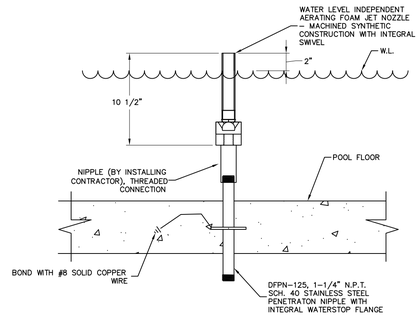
B F0.05 DFWSB-4800 WAVE BAFFLE, BLACK POWDER COAT FINISH
SCALE: N.T.S.


1/2" CORD SEAL
1" X 1/2" THREAD TO THREAD SCH.80 BUSHING
EXPLODED VIEW
TAP 1" PIPE THREAD FROM BOTH SIDE OF PENETRATION
1" MALE ADAPTER
DFUL-250N, 250W/120V NICHE MOUNTED FOUNTAIN LIGHT
W.L.
TAP 3/4" HUB TO RECEIVE 1/2" MALE CORD SEAL; ADD 3/4"X1/2" THREAD TO THREAD REDUCING BUSHING TO ACCEPT 1/2" CORD SEAL
3/4" C.
ALL SIDE TAPS 3/4" STANDARD
DFJB-4DB, BDB, 8-TAP DECK BOX
POOL FLOOR
1/2"CORD SEAL
GROUND LUG
3/4" C. TO CONTROL PANEL, 2#12 AWG, 1#12 GROUND

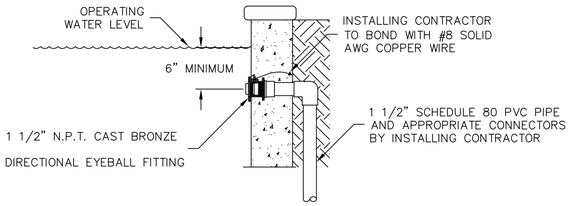
C F0.05 DFUL-250N 250W/120V FLOOR-MOUNTED LIGHT & DECK MOUNTED JUNCTION BOX
SCALE: N.T.S.


LIGHT POLE
3" STAINLESS STEEL ANGLE IRON MOUNTED TO SIDE OF LIGHT POLE
#18 WIRES TO THE ANEMOMETER SHOULD BE RUN IN A METAL CONDUIT OR BE A SHIELDED PAIR. DO NOT RUN THESE WIRES WITH POWER LINES - SHIELDED CABLE AND CONDOLET TO BE PROVIDED BY CONTRACTOR
IMPORTANT
LOCATE ANEMOMETER ABOVE AND UPWIND OF FOUNTAIN
METAL PIPE MUST BE GROUNDED - GENERAL CONTRACTOR SHALL COORDINATE
COORDINATE MOUNTING WITH LIGHT POLE MANUFACTURE
STANDARD 10' TAIL

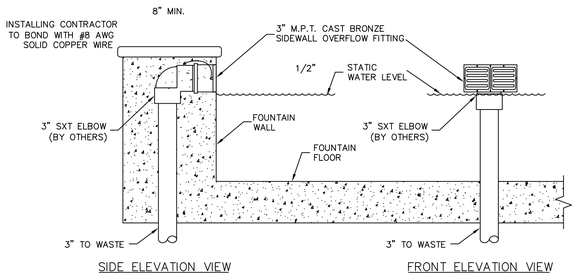
D F0.05 DFAN-100 3-CUP ANEMOMETER
SCALE: N.T.S.


WATER LEVEL INDEPENDENT AERATING FOAM JET NOZZLE - MACHINED SYNTHETIC CONSTRUCTION WITH INTEGRAL SWIVEL
W.L.
2"
10 1/2"
NIPPLE (BY INSTALLING CONTRACTOR), THREADED CONNECTION
POOL FLOOR
BOND WITH #8 SOLID COPPER WIRE
DFPN-125, 1-1/4" N.P.T. SCH. 40 STAINLESS STEEL PENETRATON NIPPLE WITH INTEGRAL WATERSTOP FLANGE

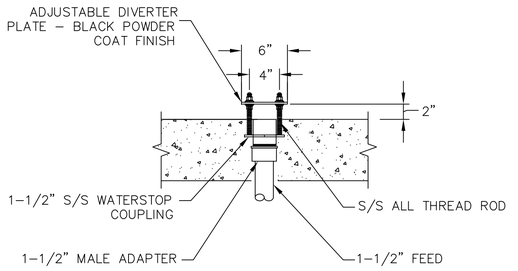
E F0.05 DFFJ-125WLI FOAM JET NOZZLE WITH INTEGRAL SWIVEL & WATERSTOP FITTING
SCALE: N.T.S.


OPERATING WATER LEVEL
6" MINIMUM
1 1/2" N.P.T. CAST BRONZE
DIRECTIONAL EYEBALL FITTING
INSTALLING CONTRACTOR TO BOND WITH #8 SOLID AWG COPPER WIRE
1 1/2" SCHEDULE 80 PVC PIPE AND APPROPRIATE CONNECTORS BY INSTALLING CONTRACTOR

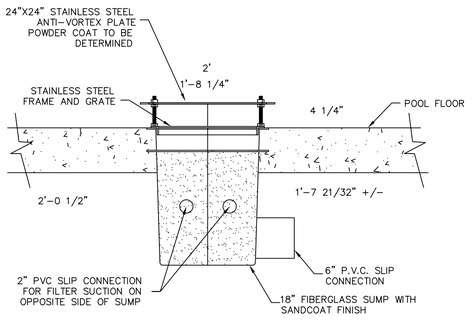
F F0.05 DFEF-150 EYEBALL FITTING
SCALE: N.T.S.



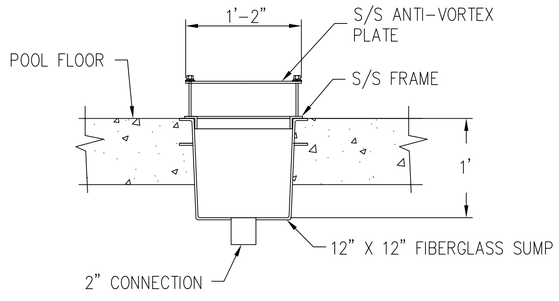
G F0.05 DFSO-300SW WALL-NICHE OVERFLOW
SCALE: N.T.S.



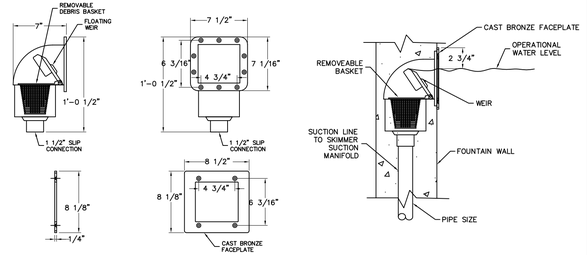
H F0.05 DFDF-150 DISCHARGE FITTING WITH ADJUSTIBLE DIVERTER PLATE MAKE-UP WATER & FILL INLET
SCALE: N.T.S.


24"X24" STAINLESS STEEL ANTI-VORTEX PLATE POWDER COAT TO BE DETERMINED
2'
1'-8 1/4"
STAINLESS STEEL FRAME AND GRATE
4 1/4"
POOL FLOOR
2'-0 1/2"
1'-7 21/32" +/-
2" PVC SLIP CONNECTION FOR FILTER SUCTION ON OPPOSITE SIDE OF SUMP
6" P.V.C. SLIP CONNECTION
18" FIBERGLASS SUMP WITH SANDCOAT FINISH

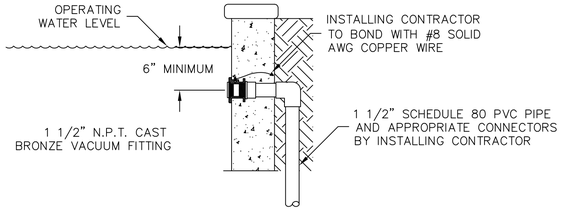
I F0.05 DFSS-1824-6 FEATURE RETURN SUMP WITH ANTI-VORTEX PLATE
SCALE: N.T.S.



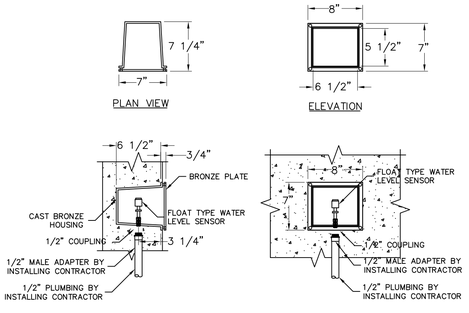
J F0.05 DFSS-1214-2 FILTER RETURN SUMP WITH ANTI-VORTEX PLATE
SCALE: N.T.S.



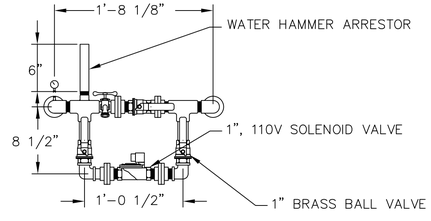
K F0.05 DFSK-150-2 SKIMMER
SCALE: N.T.S.


OPERATING WATER LEVEL
6" MINIMUM
1 1/2" N.P.T. CAST BRONZE VACUUM FITTING
INSTALLING CONTRACTOR TO BOND WITH #8 SOLID AWG COPPER WIRE
1 1/2" SCHEDULE 80 PVC PIPE AND APPROPRIATE CONNECTORS BY INSTALLING CONTRACTOR

L F0.05 DFVF-150 VACUUM FITTING
SCALE: N.T.S.



M F0.05 DFSO-SW-A WALL-NICHE WATER LEVEL SENSOR & HOUSING
SCALE: N.T.S.



N F0.05 DFWMUA-100-SS MAKEUP WATER ASSEMBLY, MOUNTED IN VAULT
SCALE: N.T.S.

PLEASE NOTE: FOR THE "EARLY PROCUREMENT PACKAGE" PLEASE FURNISH ALL FOUNTAIN EQUIPMENT AS IDENTIFIED ON THE FOUNTAIN EQUIPMENT SCHEDULE ON DRAWING F0.04 AND AS DESCRIBED IN THE SPECIFICATION SECTION 13 1213. ALL OTHER MATERIALS AND INSTALLATION WILL BE BY OTHERS.

STATE OF ALABAMA
DAVIS ARCHITECTS
2413
NEIL E. DAVIS
REGISTERED ARCHITECT

SCIENCE & ENGINEERING COMPLEX
SHELBY FOUNTAIN & SITE IMPROVEMENTS
THE UNIVERSITY OF ALABAMA ; TUSCALOOSA, ALABAMA
UA PROJECT # 000-12-177

DAVIS ARCHITECTS

DAVIS ARCHITECTS, INC.
120 TWENTY THIRD STREET SOUTH
205.322.7482
BIRMINGHAM AL 35233
FAX 322.7485
WEBSITE DADOT.COM

KEY PLAN

REV	DATE	DESCRIPTION

SHEET TITLE
DETAILS
EARLY PROCUREMENT PACKAGE
MARCH 15, 2013

DRAWN	CHECKED	APPROVED

PROJECT NO.
3684.01

DRAWING NO.
F0.05

FOUNTAIN EQUIPMENT

All in-pool fittings shall be constructed of stainless steel, bronze, brass, copper or fiberglass. Fittings that will be visible shall have finishes that blend into the pool floor and walls (bronze or brass finishes that will age naturally to a dark color, or painted to blend with pool finishes).

Fountain Equipment Manufacturer shall be Delta Fountains. CONTACT JAMES TURNER AT DELTA FOUNTAINS, 904.886.9030, JAMES@DELTAFOUNTAINS.COM. Refer to drawings for dimensions and installation details. Refer to project specifications Section 13 1213.

GENERAL NOTES

1. FINAL NOZZLE INSTALLATION AND ADJUSTMENT FOR POSITIONING AND THROTTLING TO ACHIEVED SPECIFIED PERFORMANCES FOR ALL DISPLAY DISCHARGE POINTS TO BE PERFORMED BY INSTALLING CONTRACTOR.
2. THE EQUIPMENT VAULT LOCATION IS SHOWN IN GENERAL VICINITY ONLY. CONFIRM THE EXACT LOCATION OF THE PUMP VAULT AND PROPER ELEVATION WITH THE ARCHITECT PRIOR TO INSTALLATION.
3. PIPE ROUTING ON THE DRAWINGS IS DIAGRAMMATIC AND IN SOME INSTANCES EXAGGERATED FOR CLARITY. THE CONTRACTOR SHALL DETERMINE THE EXACT ROUTING AT THE SITE TO AVOID CONFLICT WITH SITE CONDITIONS. ANY ROUTING WHICH CREATES A TRAPPED CONDITION IN THE PIPING MUST BE CALLED TO THE ATTENTION OF THE ARCHITECT BEFORE THE PIPE IS INSTALLED.
4. ALL PIPING BETWEEN THE WATER FEATURES AND PUMP ROOM SHALL BE INSTALLED SLOPED TOWARD THE PUMP ROOM A MINIMUM OF 2% UNLESS OTHERWISE INDICATED ON THE DRAWINGS. IN CASES WHERE THE 2% SLOPE CANNOT BE ACHIEVED FOR ANY REASON SUBMIT THE PROPOSED PIPING SLOPE TO THE ARCHITECT PRIOR TO INSTALLATION.
5. THE WORK TO COMPLETE THE INSTALLATION OF THE FOUNTAIN INCLUDES SUCH NECESSARY MATERIAL AND DEVICES OF A MINOR NATURE THAT MAY NOT BE INDICATED ON THE DRAWINGS OR MENTIONED IN THE SPECIFICATIONS, BUT WHICH ARE NECESSARY FOR THE COMPLIANCE WITH CODES AND FOR THE SUCCESSFUL OPERATION OF THE FEATURE. THE CONTRACTOR SHALL BE ALLOWED NO EXTRA COMPENSATION BECAUSE OF THIS REQUIREMENT.
6. THOROUGHLY TEST ALL FIXTURES, SERVICES AND ALL CIRCUITS FOR PROPER OPERATING CONDITIONS AND FREEDOM FROM GROUNDS AND SHORT CIRCUITS BEFORE ACCEPTANCE IS REQUESTED. ALL EQUIPMENT, APPLIANCES AN DEVICES SHALL BE OPERATED UNDER LOAD CONDITIONS.
7. CONTRACTOR SHALL FURNISH AND INSTALL COMPLIES WITH ALL APPLICABLE NATIONAL AND LOCAL CODES AND PROJECT SPECIFICATIONS.
8. ALL POOLS SHALL BE WATERPROOFED BY SPECIFIED. APPROVED MEANS".
9. PRIOR TO ANY FINISHING MATERIALS (I.E. LIGHTS, JETS, COVER PLATES ETC.) BEING INSTALLED, ALL POOLS SHALL BE TESTED FOR LEAKS FOR A MINIMUM OF 72 HOURS AND ALL WATERPROOFING AND TILE WORK SHALL BE COMPLETED.
10. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
11. CONSULTANT ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS NOT SHOWN ON THESE DRAWINGS.
12. THE FEATURE NOZZLES SHALL BE INSTALLED WITH AN ACCURACY OF "+" OR "-" 1/2".
13. CONTRACTOR SHALL PROVIDE ALL CONCRETE WORK AS REQUIRED BY ALL MECHANICAL AND ELECTRICAL FOUNTAIN EQUIPMENT REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, HOUSEKEEPING PADS, LOCK-DOWN SLABS, AND THRUST BLOCKS WHERE INDICATED.
14. CONTRACTOR SHALL PROVIDE ALL UTILITIES SUCH AS POWER SUPPLIES, WATER SUPPLIES, AND SEWER CONNECTIONS UNDER THE BUILDING CONTRACT UP TO THE FOUNTAIN CONTROLS, EQUIPMENT AND/OR POOL FITTINGS WHERE INDICATED.
15. CONTRACTOR SHALL PROVIDE AND IS RESPONSIBLE FOR ALL ELEVATION AND X-Y COORDINATED RELATING TO ALL FOUNTAIN EQUIPMENT INCLUDING VAULTS, POOLS, LEDGES, AND PUMPS.
16. CONTRACTOR/INSTALLER IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL DIMENSIONS AT JOBSITE. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION/INSTALLATION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, & FOR ANY SAFETY REQUIREMENTS, CODES, PRECAUTIONS, RULES, REGULATIONS, OR PROGRAMS PERTAINING TO THE CONSTRUCTION PROJECT, INCLUDING, BUT NOT LIMITED TO OSHA CONFINED SPACE REQUIREMENTS FOR PUMP ROOMS, VAULT ROOM PITS.
17. ALL COMPONENTS FURNISHED FOR INCORPORATION OF FOUNTAIN PRODUCTS SHALL BE U.L. LISTED WHENEVER SUCH LABELING IS AVAILABLE FROM THE SOURCE EQUIPMENT OR MATERIAL.
18. SHOULD ANY PRODUCT REQUIRE A "THIRD PARTY" LABEL OR CERTIFICATION AS AN ASSEMBLY (E.G., N.E.C., U.L. OR E.T.L. LISTING) SUCH REQUIREMENTS SHALL BE DETERMINED, CONTRACTED FOR, AND PAID FOR BY CONTRACTOR.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR SPECIAL LABELING OR CERTIFICATION REQUIREMENTS, INCLUDING THIRD PARTY PRODUCT TESTING IF REQUIRED TO MEET CODE REQUIREMENTS.
20. NOT USED.
21. FATAL SUCTION ENTRAPMENT CAN OCCUR IF FOUNTAIN MECHANICAL EQUIPMENT AND PIPING IS NOT INSTALLED CORRECTLY AS SHOWN. ANTI-VORTEX PLATES MUST BE SECURELY FASTENED TO SUMPS AND/OR POOL FLOOR USING SUITABLE VANDAL RESISTANT SAFETY FASTENERS AND ANCHORS AT ALL TIMES DURING OPERATION OF FOUNTAIN SYSTEM.
22. NOTWITHSTANDING THE CONTRACT DOCUMENTS, INCLUDING ARCHITECT'S FINAL "FOR CONSTRUCTION" PLANS AND SPECIFICATION DATA, THE FOUNTAIN SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S FINAL AND APPROVED SET OF SHOP/INSTALLATION DRAWINGS, DETAILS, AND FOUNTAIN PRODUCT WARRANTY AND SYSTEM PERFORMANCE OR FOUNTAIN EQUIPMENT MANUFACTURER'S GUARANTEE IS VOID.
23, WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED MEASUREMENTS.
24, NOT USED.
25. ANY WATERPROOFING DETAILS OR SPECIFICATIONS THAT MAY APPEAR ON FOUNTAIN PLANS OR EQUIPMENT DETAILS ARE FOR GENERAL REFERENCE ONLY AND SHALL NOT BE INTERPRETED OR RELIED UPON AS A FORMAL SPECIFICATION OR RECOMMENDATION. CONVERSELY, THE ABSENCE OF WATERPROOFING DETAILS OR SPECIFICATION ON FOUNTAIN PLANS, DETAILS OR PRODUCT SHEETS DO NOT IMPLY THAT WATERPROOFING IS NOT A PROJECT REQUIREMENT.
26. NOT USED.
27. IT IS THE RESPONSIBILITY OF THE WATERPROOFING CONTRACTOR TO REVIEW THE PROJECT SPECIFICATIONS FOR WATERPROOFING REQUIREMENTS WITH THE FOUNTAIN AND RELATED COMPONENTS AND PROVIDE THE SPECIFIED WATERPROOFING PRODUCTS AND SYSTEMS TO ENSURE WATERPROOF INTEGRITY OF THE FOUNTAIN SYSTEM.
28. IT IS THE RESPONSIBILITY OF THE FOUNTAIN EQUIPMENT INSTALLER TO COORDINATE ALL WATERPROOFING MATERIALS, SYSTEMS, APPLICATIONS, PROCEDURES, MEANS AND METHODS TO ENSURE THE WATERPROOFING IS INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
29. IF THE FOUNTAIN CONTRACTOR/WATERPROOFER HAS QUESTIONS PERTAINING TO WATERPROOFING, THEY SHALL BE DIRECTED TO THE PROJECT ARCHITECT WHO IS SOLELY RESPONSIBLE FOR SUCH MATTERS.
30. ALL FOUNTAIN SYSTEM EQUIPMENT AND COMPONENTS ARE DESIGNED AND MANUFACTURED FOR USE IN FRESH WATER APPLICATIONS ONLY. DO NOT INSTALL OR OPERATE ANY EQUIPMENT IN SALT, BRINE, OR BRACKISH WATER OF ANY KIND OR WARRANTY IS VOID.
31. NOT USED.
32. REFER TO CIVIL OR STRUCTURAL DESIGN DRAWINGS, DETAILS, NOTATIONS, ETC, FOR FOUNTAIN LAYOUT, STRUCTURE OR CONSTRUCTION/BUILDING PRACTICES, INCLUDING, BUT NOT LIMITED TO, SOIL INTEGRITY, CONCRETE DESIGN, SPECIFICATIONS, AND SLAB PEAR METHODS, CONCRETE STRUCTURAL WATERPROOFING SPECIFICATIONS, MATERIALS, AND METHODS, ETC, UNLESS OTHERWISE SPECIFICALLY STATED.
33. ANY STRUCTURE DEPICTED OR APPEARING ON FOUNTAIN PLANS SHALL BE SHOWN SOLELY FOR DIMENSIONAL REFERENCE AND GENERAL STRUCTURAL ORIENTATION IN ORDER TO ADEQUATELY IDENTIFY, COORDINATE, ORIENT, LOCATE AND INSTALL FOUNTAIN EQUIPMENT PACKAGE, AND SHALL NOT BE RELIED ON FOR ANY OTHER PURPOSES.
34, NOT USED,
35. LANDSCAPE, AND GROUND COVER IS SPECIFIED TO ENSURE EXCESS DEBRIS WILL BE KEPT AWAY FROM, AND OUT OF THE FOUNTAIN SYSTEM. PROPER SLOPE OF GRADE IS MANDATORY TO KEEP RAIN WATER AND IRRIGATION WATER FROM ENTERING INTO THE FOUNTAIN BASIN AND EQUIPMENT VAULT.
36. REFER TO MECHANICAL AND ELECTRICAL NOTES ON DRAWINGS FOR FURTHER INFORMATION.

PVC INSTALLATION NOTES

1. UNLESS ARCHITECTS SPECIFICATIONS INDICATE OTHERWISE, THE SUGGESTED MINIMUM PIPING AND FITTING STANDARD RECOMMENDED FOR THIS INSTALLATION IS TYPE 1.
2. USE ONLY CLEAR PVC CLEANER MEETING NSF, UPC, AND ASTM STANDARDS FOR CLEANING AND REPAIRING PVC PIPE AND FITTING SURFACES FOR SOLVENT CEMENTING (IPS CORPORATION "KEELOVE" TYPE C-65 OR EQUIVALENT). FOLLOW ALL DIRECTIONS AND INSTRUCTIONS APPEARING ON PRODUCT LABEL.
3. USE ONLY PURPLE PVC PRIMER MEETING NSF, UPC, AND ASTM #F-656 STANDARDS FOR SOFTENING AND PREPARING FIELD PIPE AND FITTING SURFACES FOR SOLVENT CEMENTING (IPS CORPORATION "WELD-ON TYPE P-70 OR EQUIVALENT). FOLLOW ALL DIRECTIONS AND INSTRUCTIONS APPEARING ON PRODUCT LABEL.
4. USE ONLY CLEAR OR WHITE, HEAVY BODIED, MEDIUM SETTING PVC CEMENT MEETING NSF, UPC, AND ASTM #D-2564, STANDARDS FOR SOLVENT CEMENTING PVC PLASTIC PIPE AND FITTINGS (IPS CORPORATION "WELD-ON" TYPE 711 OR EQUIVALENT). FOLLOW ALL DIRECTIONS AND INSTRUCTIONS ON PRODUCT LABEL.
5. PRESSURE TEST ALL WATER PIPING PRIOR TO COMMENCING BACKFILL OPERATIONS. HYDROSTATIC (WATER) TESTING SHALL BE THE ONLY APPROVED METHOD. DO NOT PRESSURE TEST WITH COMPRESSED AIR AS SEVERE PIPE DAMAGE AND/OR BODILY INJURY CAN OCCUR. DO NOT EXCEED THE RATED OPERATIONAL PRESSURE OF THE PIPING AND/OR FITTINGS CARRYING THE LOWEST PRESSURE RATING. LOCATE AND REPAIR ANY LEAKS AND RETEST PRIOR TO COMPLETION OF BACKFILL OPERATIONS.
6. CONCRETE "THRUST" BLOCKING IS REQUIRED AT ALL DIRECTIONAL CHANGES (TEE'S, ELBOWS, ETC.), REDUCER FITTINGS AND LINE TERMINATIONS (BUSHINGS, END CAPS, PLUGS, ETC.).
7. PERFORM ADEQUATE TRENCHING AND BACKFILL OPERATIONS WHEN INSTALLING PVC PIPING BELOW GRADE. TRENCH WIDTH SHOULD BE MINIMUM OF "PIPE O.D. PLUS 12 INCHES" AND DEEP ENOUGH TO ALLOW PIPING TO BE BURIED A MINIMUM OF 12" BELOW THE MAXIMUM EXPECTED FROST PENETRATION LINE TO AVOID FREEZE DAMAGE. LAY PIPING IN HORIZONTAL, PARALLEL, AND PERPENDICULAR MANNER, AVOID VERTICAL STACKING OF PIPES. SPACE MINIMUM OF 3" APART ON ALL PARALLEL RUNS.
8. USE ONLY CLEAN, FREE-FLOWING, NON-EXPANSIVE BACKFILL MATERIAL (NATURALLY ROUNDED 1/4" PEA GRAVEL, #910 STONE, #10 STONE, FLOWABLE FILL, OR SAND) AND BACKFILL IN 6" LIFTS WITH ADEQUATE AND COMPLETE COMPACTION BETWEEN LIFTS TO 90% OF MAXIMUM DENSITY PER ASTM 1557-70. COMPACTION TO EXCESSIVE LOADS SHALL NOT BE PERMITTED. A SECOND PRESSURE TEST ON THE PIPING SYSTEM MUST BE MADE AT THIS TIME TO ENSURE THAT PIPING HAS NOT BEEN DAMAGED DURING BACKFILL OPERATIONS.
9. AVOID LAYING SUCTION PIPING IN A MANNER THAT COULD RESULT IN A SUCTION LOOP BEFORE, DURING, OR AFTER BACKFILLING AND COMPACTION. ALWAYS PITCH LINE IN A CONSTANT PITCH DIRECTION TO AVOID A SUCTION LOOP THAT WILL CAUSE AIR TO BE PERMANENTLY TRAPPED, CAUSING LOSS IN PERFORMANCE OF THE PIPING SYSTEM DUE TO INCREASED FRICTION AND WORK LOAD DEMAND.
10. ANY AND ALL COSTS ASSOCIATED WITH ABOVE ARE RESPONSIBILITY OF INSTALLER.

PRESSURE TESTING

1. PERFORM TESTS IN THE PRESENCE OF THE OWNER, ARCHITECT, OR AUTHORIZED REPRESENTATIVE FOR DESIGNATED DURATION WITH NO PRESSURE LOSS OTHER THAN THAT DUE TO NORMAL LEAKS.
2. DO NOT INCLUDE EQUIPMENT IN TESTS WHICH COULD BE DAMAGED BY HIGH PRESSURE.
3. FLUSH OUT ALL PIPES WITH CLEAN WATER PRIOR TO PRESSURE TESTING AND FINAL.
4. PERFORM TESTS AS FOLLOWS:

SYSTEM	TEST PRESSURE	MEDIUM	DURATION
WATER	150 % OF OPERATING PRESSURE	WATER	24 HOURS
DRAINAGE	10FT. OVER HIGHEST PIPE INVERT	WATER	24 HOURS

5. AUTOMATIC MAKE-UP WATER SYSTEMS SHALL BE THOROUGHLY TESTED AND OPERATIVE AT THE TIME OF FINAL OBSERVATION.
6. AFTER THE SYSTEM HAS OPERATED FOR ONE WEEK, CONTRACTOR AND OWNER'S REPRESENTATIVE SHALL INSPECT WATER MAKE-UP RATES AND AGREE THAT WATER USAGE IS APPROPRIATE FOR A SYSTEM OF THIS TYPE, ARE WITHIN LOCAL ORDINANCES OR CODES, AND THAT SUCH RATES ARE NOT INDICATIVE OF EXCESSIVE LEAKAGE DURING THE SYSTEM. A WATER METER SHALL BE PLACED ON THE FILL LINE FOR THIS PURPOSE, IF NECESSARY TO DOCUMENT PRECISE WATER USAGE.

GENERAL PIPING NOTES

All system piping shall be Type L Copper, Type K Copper, or Schedule 80 PVC.
Return piping shall be routed as directly as possible and with the minimum number of bends in order to minimize friction resistance. Return piping shall be Schedule 80 PVC.
Discharge piping shall be routed as directly as possible and with a minimum number of bends in order to minimize friction resistance. Discharge piping shall be Schedule 80 PVC.
Drain piping shall comply with local codes and shall be filled with the necessary cleanouts and traps as required by those codes. Drain piping shall be Schedule 80 PVC.

1. IT IS THE INSTALLING CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL FIELD DIMENSIONS CRITICAL TO FOUNTAIN EQUIPMENT INSTALLATION AND PERFORMANCE AND REPORT ANY DISCREPANCIES, IN WRITING TO THE ARCHITECT UPON DISCOVERY.
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO CHECK AND COMPLY WITH ALL APPLICABLE NATIONAL AND LOCAL PLUMBING CODES PRIOR TO INSTALLATION OF EQUIPMENT. LOCAL CODES TAKE PRECEDENCE OVER GENERAL NOTES WHERE DISCREPANCIES OR CONFLICTS EXIST.
3. ALL PIPING PENETRATIONS THROUGH ANY CONCRETE WALL OR FLOOR MUST BE MADE WITH STAINLESS STEEL PIPE APPROPRIATE FOR THE APPLICATION, AND MUST BE FLASHED OR FITTED WITH A WATERSTOP FLANGE TO PREVENT LEAKAGE. FOR PIPE PENETRATIONS OVER 4" PIPE SIZE USE BACK TO BACK P.V.C. FLANGES WITH STAINLESS STEEL BOLTS AND HARDWARE FOR WATERSTOP.
4. INTERCONNECTING PIPING AND FITTINGS BETWEEN THE FOUNTAIN AND EQUIPMENT VAULT/ROOM IS SCHEDULE 80 P.V.C. OR COPPER AS SUITABLE FOR THE WORKING PRESSURE OF THE SYSTEM SPECIFICATION REQUIREMENTS AND LOCAL CODES.
5. ALL PIPE CONNECTIONS BETWEEN DISSIMILAR METALS MUST BE MADE WITH DIELECTRIC FITTINGS AND DIELECTRIC THREAD SEALING COMPOUND TO PREVENT GALVANIC DEGRADATION.
6. *SUCTION CENTER LINE OF PUMP MUST BE LOCATED AT OR BELOW LOWEST POOL FLOOR ELEVATION IF FLOODED-END-SUCTION TYPE, AND NO MORE THAN 4 FT. ABOVE POOL FLOOR ELEVATION IF SELF-PRIMING TYPE. ALL REDUCING FITTINGS MUST BE CONCENTRIC TYPE ON DISCHARGE LINE AND ECCENTRIC TYPE ON SUCTION LINE.*
7. SUCTION LINE MUST BE A STRAIGHT RUN INTO THE PUMP EYE OF AT LEAST 10 PIPE DIAMETERS WITH NO LOOPS, HIGH POINTS, OR TRAPS.
8. USE LONG RADIUS ELBOWS ON ALL DIRECTIONAL CHANGES ON SUCTION AND DISCHARGE LINES, IN SOME INSTANCES, PIPING DIAGRAMS ARE EXAGGERATED FOR PURPOSES OF CLARITY. MAKE ALL PIPING RUNS AS DIRECT AND LOOP-FREE AS POSSIBLE. USE THE MOST DIRECT ROUTES POSSIBLE AND USING THE MINIMUM NUMBER OF FITTINGS POSSIBLE. SLOPE ALL LINES DOWN TO PUMP, IN ALL CASES, WITH NO LOOPS, TRAPS, OR HIGH POINTS.
9. ON SUCTION LINES USE ONLY LUG TYPE BUTTERFLY VALVES, FULL-PORT, OR GATE TYPE VALVES. DO NOT REGULATE OR ADJUST FLOW FROM SUCTION SIDE OF PUMP. USE SUCTION VALVES FOR EQUIPMENT ISOLATION PURPOSES ONLY.
10. ON DISCHARGE LINES USE ONLY LUG TYPE BUTTERFLY, GLOBE, BALL, PLUG OR OTHER LOW LOSS INFINITELY ADJUSTABLE VALVES FOR ISOLATION AND FLOW REGULATION.
11. AN IN-LINE BASKET STRAINER IS RECOMMENDED ON THE SUCTION SIDE OF PUMPS, WITH BASKET PERFORATIONS PROPERLY SIZED TO PROTECT THE PUMP IMPELLER, AND FOUNTAIN NOZZLE/JET SURFACES.
12. PROVIDE ADEQUATE OVERFLOW DRAIN AND FILL LINE CAPACITY FOR THE FOUNTAIN SYSTEM.
13. THE PIPING SYSTEM SHALL BE WATER PRESSURE TESTED FOR 24 HOURS PRIOR TO BACKFILLING AND SHALL THEN BE BURIED AND/OR SUPPORTED AS REQUIRED TO PROTECT THE INTEGRITY OF MECHANICAL SYSTEM, (REFER TO PVC INSTALLATION NOTES).
14. INSTALLING CONTRACTOR IS RESPONSIBLE TO INSTALL THESE PIPES AS SHOWN AT ALL PIPING INTERSECTIONS ON SUBTERRANEAN PIPING RUNS.
15. INSTALLING CONTRACTOR IS RESPONSIBLE FOR ALL PIPE SUPPORTS AND HANGERS AS REQUIRED PER LOCAL CODE AND SPECIFICATIONS.
16. INSTALLER SHALL PROVIDE ADEQUATE ACCESS, LIGHTING, DRAINAGE AND VENTILATION IN PUMP ROOM TO PREVENT FLOODING, CONDENSATION OR OVERHEATING OF EQUIPMENT, AND COMPLY WITH ALL OSHA CONFINED SPACE REGULATIONS AND REQUIREMENTS, BEFORE, DURING AND AFTER SYSTEM INSTALLATION.
17. ANY PRESSURIZED CITY WATER LINES SUPPLYING THE FOUNTAIN SYSTEM SHALL BE OF TYPE K COPPER AND SHALL BE PROTECTED BY AN APPROVED BACKFLOW PREVENTION DEVICE AND PRESSURE REDUCING VALVE SET AT 50 PSI MAXIMUM PRESSURE AND MINIMUM OF 40 PSI.
18. THE INCOMING WATER SUPPLY LINE PRESSURE MUST NOT EXCEED 50 PSI AND IS PART OF THE BUILDING CONTRACT, NOT THE FOUNTAIN.
19. 'P' TRAPS AND VENTS SHALL BE INSTALLED ON ANY DRAIN LINE CONNECTED TO A SANITARY SEWER SYSTEM, WHERE AND WHEN REQUIRED BY PLUMBING CODE, REGARDLESS OF WHETHER SHOWN ON INSTALLATION DRAWINGS.
20. SOIL COMPACTION AROUND SUBTERRANEAN PIPING TO BE COMPACTED IN 6" LIFTS.
21. ALL PIPING TO HAVE MINIMUM 2% SLOPE DOWN FROM FOUNTAIN TO EQUIPMENT VAULT/EQUIPMENT ROOM UNLESS OTHERWISE SPECIFIED ON THE CONTRACT DOCUMENTS. IF 2% SLOPE CANNOT BE ACHIEVED FOR ANY REASON SUBMIT PROPOSED SLOPE VARIATIONS TO ARCHITECT PRIOR TO INSTALLATION.
22. PRESSURE TESTING ON ALL PIPE RUNS BETWEEN THE PUMPING EQUIPMENT AND THE FOUNTAIN BASIN SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR AFTER "ROUGH-INS" (PIPES INSTALLED AND STUBBED UP) ARE COMPLETE AND AGAIN BEFORE ANY CONCRETE IS POURED. IT IS RECOMMEND TO MAINTAIN ALL PIPING UNDER PRESSURE DURING THE CONSTRUCTION PHASE TO DETECT ANY DAMAGE EARLY ON. ALL TESTS SHALL USE WATER, NOT AIR FOR PRESSURE TESTING. TESTING PROCEDURES & FORMS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO TESTING.
23. ALL PENETRATIONS THROUGH OUTSIDE WALLS TO BELOW GRADE SHALL BE SEALED PER BUILDING SPECIFICATIONS. USING "EASY-LINK SEALS" IS RECOMMENDED.
24. ALL PIPING PENETRATIONS THROUGH STRUCTURE WALLS INTO OPEN AREAS BELOW POOL STRUCTURE MUST HAVE ALLOWANCES MADE FOR SETTLEMENT.
25. ALL ABOVE GROUND PIPING SHALL BE SUPPORTED WITH PIPE HANGERS PER SPECIFICATIONS AND CODE.
26. ALL PIPING IS ASSUMED TO BE BURIED BELOW GROUND IN ALL CASES, AND NOT INSTALLED ON OR ABOVE GRADE WHERE AN AIR TRAP, LOOP, OR HIGHPOINT COULD BE CREATED.
27. CONTRACTOR SHALL OBTAIN ALL NECESSARY INSTALLATION PERMITS AND INSPECTIONS.
28. ALL WELDED PVC FITTINGS ABOVE 6" DIAMETER SHALL BE FIBERGLASS REINFORCED AND USED ONLY ON NON-PRESSURIZED LINES.
29. ANY AND ALL COSTS ASSOCIATED WITH ABOVE ARE RESPONSIBILITY OF INSTALLER.

EQUIPMENT VAULT INSTALLATION INSTRUCTIONS:

1. RECEIVING THE VAULT
A. UPON ARRIVAL OF THE VAULT, THE RECEIVING AGENT SHOULD INSPECT THE INTERIOR AND EXTERIOR FOR ANY VISIBLE DAMAGE THAT MAY HAVE OCCURRED DURING SHIPPING. IF ANY DAMAGE IS FOUND, ALL DAMAGES AND SHORTAGES SHALL BE CLEARLY DOCUMENTED ON THE BILL OF LADING AND PACKING SLIP BEFORE THE DELIVERY DRIVER LEAVES THE PREMISES. THE RECEIVING AGENT SHOULD IMMEDIATELY NOTIFY THE FREIGHT LINE. NOTE THE BILL OF LADING AND CONTACT THE FOUNTAIN EQUIPMENT MANUFACTURER. IF THE EQUIPMENT VAULT IS NOT GOING TO BE INSTALLED AT THE
TIME OF DELIVERY, THE VAULT SHOULD BE STORED IN A COVERED AREA SAFE FROM FLOODING.
B. CONTRACTOR SHALL STORE ALL COMPONENTS IN THEIR ORIGINAL PACKAGES AND PROTECT ALL ITEMS FROM DAMAGE UNTIL FINAL PLACEMENT OCCURS. CONTRACTOR SHALL ROTATE ALL MOTOR SHAFTS ¼ TURN EACH AND EVERY MONTH DURING STORAGE UP TO THE TIME OF FIRST
PERFORMANCE TO ENSURE MOTOR SHAFT INTEGRITY. TIGHTEN ALL PLUGS, BOLTS, NUTS, AND UNION TYPE FITTINGS AND CLOSE ALL VALVES UNTIL SYSTEM IS READY FOR STARTUP.
C. FIELD VERIFY ALL EQUIPMENT DIMENSIONS PRIOR TO EXCAVATION. DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE. ANY DISCREPANCIES SHOULD BE REPORTED, IN WRITING, IMMEDIATELY TO THE FOUNTAIN EQUIPMENT MANUFACTURER. THE FOUNTAIN EQUIPMENT MANUFACTURER IS NOT RESPONSIBLE FOR ANY DIMENSIONAL DISCREPANCIES IF THE CONTRACTOR FAILS TO NOTIFY THE FOUNTAIN EQUIPMENT MANUFACTURER IN A TIMELY MANNER BEFORE INSTALLATION OF THE EQUIPMENT VAULT.
2. EXCAVATION
A. EXCAVATE TO PROPER DEPTH TO RECEIVE THE VAULT AND A MINIMUM CLEAR AREA OF 3'-0" AROUND THE PERIMETER OF THE VAULT.
B. FIELD VERIFY EQUIPMENT DIMENSIONS AND REPORT ANY DISCREPANCIES IN WRITING TO THE FOUNTAIN MANUFACTURER.
C. ALLOW FOR TAMPERING OF THE SOIL TO PREVENT CAVE-IN AND/OR PROVIDE SOIL SUPPORT PER OSHA GUIDELINES.
D. INSTALL 4-6" THICK LEVELING SLABS AND POUR THE CONCRETE ANCHOR SLAB AS INDICATED ON THE DRAWINGS. THE ANCHOR SLAB IS TO BE REINFORCED WITH GRID USING #4 REBAR ON 12" CENTERS.
E. ONE PIECE MOLDED STAINLESS STEEL ANCHOR BOLTS AND ¼" DIAMETER STAINLESS STEEL ANCHOR WIRE ARE TO BE PROVIDED AND INSTALLED BY THE FOUNTAIN CONTRACTOR. THE ANCHOR BOLTS SHOULD BE TIED TO THE REINFORCING GRID.
3. INSTALLING THE VAULT
**ALL OF THE FOLLOWING SHALL BE COMPLETED WITHOUT FAIL ON THE SAME DAY THE PUMP VAULT IS LOWERED DOWN INTO THE DESIGNATED SPACE:
A. CHECK FOR FAVORABLE AND DRY METEOROLOGICAL CONDITIONS PRIOR TO INSTALLATION OF EQUIPMENT VAULT.
B. THE VAULT SHOULD BE RIGGED WITH STRAPS, LIFTING FROM THE BOTTOM OF THE VAULT, NOT THE STEEL SKID SUPPORT. CARE SHOULD BE TAKEN TO POSITION THE STRAPS AWAY FROM ANY PLUMBING CONNECTIONS ON THE SIDE OF THE VAULT. DO NOT USE CHAINS OR CABLES TO LIFT THE VAULT. DO NOT USE THE ANCHOR BOLTS ON THE SIDE OF THE VAULT FOR LIFTING. LOWER THE VAULT ON TO THE ANCHOR SLAB AND ADJUST THE POSITION AS NECESSARY.
C. THE FOUNTAIN CONTRACTOR IS TO SUPPLY AND INSTALL THE STAINLESS STEEL ANCHOR CABLES (¼" DIAMETER MIN, BY CONTRACTOR) FROM THE VAULT EYEHOOKS TO THE ANCHOR BOLTS IN THE SLAB (ANCHOR BOLTS BY CONTRACTOR). REMOVE SLACK FROM THE CABLES AND TIGHTEN. DO NOT OVER TIGHTEN THE CABLES.
D. ONCE THE VAULT IS IN PLACE, IMMEDIATELY CONNECT THE TWO VENTILATION LINES AND ROUTE THEM TO THEIR DESIGNATED LOCATION.
E. PERMANENT POWER TO THE PUMP(S) IS TO BE SUPPLIED BY THE FOUNTAIN EQUIPMENT MANUFACTURER'S ARCHITECT BEFORE ANY EQUIPMENT IS INSTALLED ENERGIZED.
F. CONNECT THE 1-1/2" OR 2" BACKWASH/SUMP PUMP DISCHARGE LINES TO THE SEWER SYSTEM: EITHER SANITARY OR STORM, PER LOCAL CODES OR AS DESIGNATED ON THE CIVIL/MEP DRAWINGS. CHECK THE BALL VALVE ON THE SUMP PUMP DISCHARGE LINE AND MAKE SURE IT IS OPEN.
G. LIFT THE FLOAT ON THE SUMP PUMP (ONCE POWER CONNECTION IS MADE) TO MAKE SURE THE PUMP IS WORKING.
H. WHILE CONTRACTOR UNDER TEMPORARY POWER, TEST ALL LINES FOR LEAKS, ESPECIALLY BEFORE AND AFTER RAIN.
I. PIPING AND CONDUIT CONNECTIONS MUST BE MADE AS SOON AS POSSIBLE TO PREVENT FLOODING OF THE VAULT. IF PIPING CANNOT BE CONNECTED AT THE TIME OF INSTALLATION, THE FOUNTAIN CONTRACTOR MUST CHECK TO MAKE SURE THAT ALL INTERIOR VALVES ARE CLOSED AND ALL CONDUIT CONNECTIONS ARE PLUGGED OR SEALED.
J. POUR ANCHOR SLAB. REFER TO INSTALLATION DETAIL DRAWINGS.
K. INSTALL ADDITIONAL TEMPORARY AUTOMATIC PUMP OUT OF SUITABLE SIZE OUTSIDE OF THE VAULT IF THE HOLE HAS TO BE LEFT OPEN OVERNIGHT. CONTRACTOR IS RESPONSIBLE TO KEEP THE EXCAVATION AREA AROUND THE VAULT PUMPED AND DRY AT ALL TIMES WHILE AREA IS EXCAVATED.
L. THE ACCESS HATCH ON THE VAULT SHOULD BE CLOSED AND LOCKED AT ALL TIMES WHILE UNATTENDED DURING THE INSTALLATION PERIOD.

WARNING
FLOODING OF THE VAULT THRU THE NEGLIGENCE OF THE CONTRACTOR TO ADHERE TO THESE INSTALLATION SPECIFICATIONS VOIDS THE WARRANTY
ON ALL EQUIPMENT IN THE VAULT. REPLACEMENT OF DAMAGED EQUIPMENT WILL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. THE GUIDELINES OUTLINED ABOVE WILL AID IN THE PREVENTION OF FLOODING. IN ADDITION, CONSULT ALL INSTALLATION DETAILS IN THE CONSTRUCTION DOCUMENTS.

4. CONCRETE ANCHOR SLAB
A. POUR 4" - 6" CONCRETE LEVELING SLAB. STAINLESS STEEL ANCHOR BOLTS SHOULD BE INSERTED IN THE LEVELING SLAB.
B. LEVELING SLAB SHOULD BE SLOPED SLIGHTLY TO THE CORNER OF THE VAULT WHERE THE SUMP PUMP/GRAVITY DRAIN SUMP IS LOCATED.
C. POUR ANCHOR SLAB IN ACCORDANCE WITH DETAILS ON CONTRACT DOCUMENTS. THE CONCRETE SHOULD BE POURED WITH A MIN. 8" SLUMP TO ENSURE THE CONCRETE ADEQUATELY COVERS THE MOUNTING SKID AND FILLS THE ENTIRE VOID UNDER THE VAULT BETWEEN LEVELING SLAB AND BOTTOM OF VAULT.
5. PIPING AND CONDUIT CONNECTIONS
A. CONNECT ALL PIPING AND CONDUIT AS INDICATED ON THE CONSTRUCTION DOCUMENTS. DO NOT EXTERNALLY LOAD THE VAULT CONNECTIONS OR ALLOW THE CONNECTIONS TO SUPPORT THE WEIGHT OF THE CONNECTED PIPING. IF THE PIPING IS NOT SUPPORTED PROPERLY, SOIL SETTLING CAN RESULT IN EXCESSIVE LOADING ON THE PIPING. THIS CAN RESULT IN BROKEN PIPING AND MISALIGNED CONNECTIONS IN THE VAULT.
B. ALL OPEN CONDUITS CONNECTED TO THE VAULT SHOULD BE SEALED OR PLUGGED TO PREVENT WATER INTRUSION.

WARNING
IF ALL DRAINAGE/SUCTION PIPING, ELECTRICAL CONDUIT CONNECTIONS AND AIR VENTS ARE NOT ROUTED ABOVE GRADE AND CAPPED, FLOODING WILL OCCUR DURING SEVERE WEATHER CONDITIONS. A ONE DAY VAULT INSTALLATION IS RECOMMENDED.

6. PRESSURE TESTING
A. PRESSURE TEST ALL PIPING CONNECTED TO THE VAULT TO INSURE THERE ARE NO LEAKS IN THE SYSTEM. REFER TO THE PVC INSTALLATION & PRESSURE TESTING NOTES FOR PRES

SECTION 13 1213 – WATER FEATURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1, apply to this Section.

1.2 SUMMARY

A. Work of this Section includes all labor, materials, equipment, tools, incidentals, and services necessary to design, engineer, manufacture, supply, and install the Stationary Fountain with related mechanical and electrical systems complete including all components, hardware, and accessories as indicated on the Contract Drawings and specified herein:

1. Discharge and suction piping systems.
2. Electrical conduit and wiring systems.
3. Subterranean Equipment Vault
4. Mechanical and electrical equipment with components and accessories.
5. Manufacture of primary fountain equipment and components is a “Basis of Design”.
6. Include fountain system testing, adjustment, and operational training for Owner.

A. Related Sections include the following:

1. Division 9, Section 09 9600 “High-Performance Coatings”
2. Division 26 Section 26 0500 “Basic Electrical Materials and Methods”
3. Division 26 Section 25 0526 “ Grounding and Bonding”
4. Division 26 Section 26 2716 “Enclosed Switches and Circuit Breakers”

B. Related Fountain System Work to be Provided by Other Separate Contractors:

1. Pool construction, refer to Architectural & Structural sections.
2. Power supply to the vault, refer to Electrical sections.
3. Site water, coordinate with Civil sections.
4. Site sanitary, coordinate with Civil sections.

C. General: As Specified in Division 1.

D. “Rules Governing and Restricting the Use and Supply of Water”, City of Tuscaloosa. AL. Department of Environmental Protection, Bureau of Water and Sewer Operations, Division of Water Connections and Permits.

E. Other Standards and References:

1. American Society for Testing and Materials (ASTM).
2. American Water Works Association (AWWAA).
3. American Public Works Association (APWA).
4. American National Standards Institute, Inc. (ANSI).
5. National Fire Protection Association (NFPA).
6. Underwriters Laboratories, Inc. (UL).

7. National Sanitation Foundation (NSF).
8. Department of Health (DOH).
9. National Electric Code (NEC).
10. American Society of Mechanical Engineers (ASME).
11. American Society of Sanitary Engineering (ASSE).
12. Commercial Standards (CS).
13. National Electrical Manufacturer's Association (NEMA).
14. Uniform Building Code (UBC).
15. Institute of Electrical and Electronic Engineers (IEEE).
16. Insulated Power Cable Engineers Association (IPCEA).
17. International Plumbing Code (IPC)

F. All work shall conform to the latest edition of the National Building Code and/or International Plumbing Code.

1.3 SYSTEM REQUIREMENTS

A. Design Requirements:
1. The fountain described in this Section shall be a fully automated, self- contained type stationary feature.
2. The work of this Section shall include design of equipment items for fabrication and installation of fountain equipment and components to suit Project requirements as approved by Owner. See Division 1 for additional provisions related to delegated design by Owner's Engineer.

B. Performance Requirements:

1. The 3" Geyser nozzle is to operate at a max. display height of 20'. The perimeter Aerating Foam Jet nozzles will operate at a display height of 6' with arching throw of 12'. The combined pumping rate for the features is 525 g.p.m. @ 105' t.d.h.

1.4 SUBMITTALS

C. General: Refer to and comply with Division 1 Section, for procedures and additional submittal criteria.

D. Installer Qualifications: Comply with Article "Quality Assurance" herein. Submit fountain system installer qualifications including resume and system identification of previous work experience on fountain systems of type indicated for Project and the following work:

1. Plumbing work.
2. Electrical work
3. Concrete and Waterproofing Work.
4. Other specific work; rock work, stainless steel, etc…

E. Product Data:

1. Submit manufacturers' data for all equipment and individual components listed in "Part 2 – Products".
2. Submit a comprehensive electrical package to include a power diagram, logic diagram, process and instrumentation diagram, panel layout, component schedule, and cut sheets on all individual components in the control panel. The contractor shall furnish evidence that the building department has been contacted to assure local compliance

and that any exceptions to local requirements or the National Electric Code have been addressed.

3. Submit for other items and materials of system not indicated in this Section including for items of conduit, wiring, electrical devices, piping and fittings, sealants and/or seals to confirm compatibility and conformance to Project wide requirements.

F. Shop Drawings: A concise plan, details, and section(s) shall accompany the submittal data on all components to assure compliance with the intended design as specified and shown on the Contract Drawings.

1. Include equipment and material handling instructions and interfacing requirements and coordination notes with other trades and contractors.
2. If family product data sheets are used, cross out all items not appropriate.

G. Samples for Verification: Submit for surface exposed elements of system as requested by Architect and highlight only the information that is pertinent.

H. Quality Control Submittals:

1. Test Reports: Fountain manufacturer's test report must be included in the control panel information package. This report shall include results of the test on both motors and all lighting circuits.
2. Field Reports: The manufacturer shall provide a field test report in the controls package. This report, which includes information on the field voltage, current, and resistance at all components, must be filled out by the installing electrical contractor and submitted to the manufacturer and the Architect for approval.
3. Pressure Test Reports: All testing procedures and forms shall be submitted for approval prior to performing tests. Forms shall include test area description, name of contractor's representative performing the test, dates test is performed (start & completion dates), signature of the designated owner's representative who witnesses the test, the test pressure, length of the test, & the test method. Completed forms shall be submitted as part of the contractor's close-out documents.

I. Contract Closeout, Operations and Maintenance: Submit manuals pertaining to the operations and maintenance of the fountain system prior to final approval of system installation. The manuals shall include specification sheets, operations and maintenance data and schedules, exploded diagrams, replacement parts lists, copies of field and test reports, as-built drawings, trouble-shooting information, manufacturer contact information, contractor contact information and warranty information. Comply with Division 1.

1.5 QUALITY ASSURANCE

J. General:

1. Insofar as possible, all materials and equipment used in the installation of this work shall be of the same brand or manufacturer throughout for each class of material or equipment. The specification has allowed for substitutions, however, the substitution process will be strictly adhered to. If the process is incomplete, or not within the time frame, no substitutions will be considered. Substitutions will not be partially approved. If any item is not approved, the entire submittal will be rejected, not for resubmission. There will be no consideration for alternates, after the bid. Conform to Reference Standards and other Project Manual Sections as applicable.
2. Piping materials shall bear label, stamp, or other markings of specified testing agency.

3. Use numbers of skilled workmen equal to work requirement or occasion. The skilled workman shall be thoroughly trained and experienced in the necessary crafts and shall be completely familiar with the specified requirements and methods needed for proper performance of the work in this Section.

K. Fountain Manufacturer: The fountain equipment described in this section shall be supplied by Delta Fountains, Jacksonville, Florida, (800) 641-6675, Fax: (904) 886-9089. All other fountain manufacturers requesting approval must comply with the requirements listed in the SUBMITTALS section under the Product Data paragraph. All manufacturers' data on individual components listed in PART 2: Products, or pre approved equals where allowed, shall be submitted to the owner and fountain consultant, prior to approval. Manufacturers requesting prior approval shall submit to owner, at least 10 business days prior to the bid date, all data on all individual components listed in PART 2: Products, for review by the owner and fountain consultant. All approvals will be issued in an addendum prior to the bid date.

L. Installer's Qualifications: Plumbing and electrical work for fountain system installation shall be performed by firms with each having at least 5 years of successful fountain installation experience on features similar to that required for the Project.

M. Field Measurements: Verify dimensions with other work on Project which adjoins the equipment item(s) of this Section or to which work of this Section will be a part.

1.6 DELIVERY, STORAGE, AND HANDLING

N. Packing and Shipping: Fountain manufacturer shall adequately package all shipments to protect the material during shipment. Consolidate freight of like items when possible to ensure minimal shipments. All shipments to be freight on board, manufacturer's plant, with fully insured freight allowed to the jobsite.

O. Handling and Unloading: All shipments shall be driver signed and counted to verify that all components listed on the packing slips are included in shipment prior to leaving the manufacturer's premise.

P. Special Handling: Contractor to take necessary precautions in unloading, handling, moving, and storing all shipments, until it is installed in its final position, to protect all components from damage. Contractor to refer to all notes on the shop drawings for any additional instructions on handling fountain equipment.

Q. Acceptance at Site: Contractor to schedule and arrange for delivery of all shipments. Contractor is responsible for preparations of all equipment necessary to safely facilitate the unloading of all shipments and moving it to the final location. Freight is F.O.B plant, full freight allowed to jobsite. Contractor to account for all items in each shipment for accuracy before signing for acceptance of shipment. All damages and shortages shall be clearly documented on the Bill of Lading and packing slip before the delivery driver leaves the premises. The manufacturer shall be promptly notified within 24 hours of any and all documented damages and shortages. By signing the bill of lading, it is mutually agreed that the goods listed are accepted in apparent good order, condition and correct quantity, except as noted, and are in proper condition for transportation according to the applicable regulations of the department of transportation (for truck load shipments). In cases where shipments that are damaged in-transit and are signed for in good condition, it will be the contractor's responsibility to replace those damaged items. All shipments are subject to the manufacture's standard terms and conditions.

R. Storage and Protection: Contractor shall store all components in their original packages and protect all items from damage until final placement occurs. Contractor shall rotate all motor shafts

¼ turn each and every month during storage up to the time of first performance to ensure motor shaft integrity.

1.7 WARRANTY

S. Contractor, installer, and manufacturer shall furnish warranty for fountain system installation for a minimum period of one year from date of Substantial Completion of the Contract as specified in Contract Conditions. Contractor shall include provisions of warranty to Owner not otherwise covered by manufacturer. Warranty to include the following:

1. Fountain system to be free of defects of materials and workmanship.
2. Fountain system performance to the designated water volumes, heights, patterns, and display features, as outlined in the design requirements in section 1.3(E)(3).
3. Adjustments and/or corrections to warranted equipment shall be made at factory as per standard warranty terms.

T. The manufacturer shall warrant all properly installed and maintained fountain equipment (except lamps) as provided in "Part 2 – Products" of this Section, free of defects in material and workmanship for a minimum period of one year from shipment. The fountain manufacturer, at their option, shall replace or repair any materials, components, or workmanship found to be defective within the warranty period when returned to the factory, freight pre-paid. No component may be returned for repair or replacement without an approved return materials authorization.

1. Extended Warranties: Fountain manufacturer shall furnish to Owner any extended warranty that is standard and usually available from item manufacture/supplier for an item of equipment.

1.8 MAINTENANCE AND EXTRA MATERIALS

U. Contractor shall supply chemical treatment materials of sufficient quantity, in addition to materials needed for system testing and adjustment, for use by Owner in maintenance of the system for a period of at least one month after Substantial Completion.

V. Contractor shall supply any other special tools or parts that would be needed for Owner's maintenance of the fountain system.

W. Extra Materials – one additional replacement element is to be provided for all cartridge filters and one extra solenoid for water make-up assembly.

PART 2 - PRODUCTS

2.1 COMPONENTS

A. Mechanical Components: The major mechanical components of the stationary fountain are as follows:

1. DFFP-2500, 55 Hp feature pump, the motor shall be 208V, 3 phase, 1750 R.P.M, standard drip proof motor. The pump shall operate at a minimum of 525 GPM at 1055' TDH and shall have flanged 5" suction and 4" discharge connections, and shall be cast iron body, and have a single piece enclosed cast bronze impellor keyed to the shaft. Shaft is heat-treated stainless steel, turned and ground with a renewable bronze sleeve

to prevent contact between the shaft and the liquid being pumped. The feature pump is pre-plumbed and pre-wired in equipment vault using min. type 304 stainless steel hardware and including all necessary check valves, isolation/flow control valves, strainers, and neoprene connectors as shown on the drawings.

2. DFFP-075, 3/4 Hp, Self-priming, NSF approved filter pump and fitted 2" FPT connections. The pump shall operate at a minimum of 40 GPM at 60' TDH. Pump is one-piece case access to removable basket strainer and pump internals. The pump shall have a floating eye seal between the closed impeller and diffuser for maximum efficiency. The motor shall be 120V, 1 phase, 3450 R.P.M and have a rust-proof stainless steel shaft, and permanently lubricated, sealed bearings. Filter pump is pre-plumbed in equipment vault including all necessary check valves, isolation/flow control valves, true union type, as shown on the drawings.
3. DFCF-150, 150 SQ. FT. Cartridge filter, heavy-duty abs constructed with cam & ramp lid for easy access to removable, washable filter media. Filter is pre-plumbed in equipment vault.
4. DFBF-65, 9 lb Automatic erosion type bromine feeder, heavy-duty abs constructed with integral check valve and proportioning valve. Feeder is pre-plumbed in equipment vault.
5. DFWMUA-150-100, 1-1/2" water make-up assembly, type 304, schedule. 40 stainless steel constructed with 110V, bronze, slow closing solenoid valve, water hammer arrestor, (1) 1-1/2" heavy-duty bronze constructed ball valve and (2) 1" heavy-duty bronze constructed ball valves. The water make-up assembly is pre-plumbed ready for installation by the contractor. PVC or copper construction is not acceptable. The contractor shall connect in-line on fresh water make-up line and provide back-flow preventer and/or reduced pressure zone, and pressure reducing valve to ensure the incoming line pressure does not exceed 50 P.S.I.
6. DFEF-150, 1-1/2" N.P.T. cast bronze constructed inlet fitting with integral waterstop flange and machined brass directional eyeball fitting with 3/4" discharge with . PVC constructed is not acceptable.
7. DFVF-150, 1-1/2" F.P.T. Vacuum Return Inlet fitting with integral waterstop flange and brass plug, natural bronze finish.
8. DFVK-100, Vacuum Kit with leaf rake, wall brush, vacuum and backwash hose, and telescopic Ext Pole.
9. DFSS-1214-2.5, 12" X 12" discharge sump, constructed of a minimum of 6 layers of heavy duty fiberglass, black gel coat finish on inside, sand coat finish on outside for better adhesion to concrete, and with integral water-stop flange, stainless steel diverter plate and includes integral schedule 80 PVC, 2.5" coupling.
10. DFWLS-N, Dual probe water level sensor, cast bronze and stainless steel constructed, probe voltage 12 volts or less, 3 wire, with integral wave suppression shield wall niche mounted.
11. DFSS-1214-2.5, 12" X 12" suction sump, constructed of a minimum of 6 layers of heavy duty fiberglass, black gel coat finish on inside, sand coat finish on outside for better adhesion to concrete, and with integral water-stop flange, stainless steel anti-vortex plate and includes integral schedule 40 PVC, coupling as shown on drawings.
12. DFSS-1824-6, 18" X 18" suction sump, constructed of a minimum of 6 layers of heavy duty fiberglass, black gel coat finish on inside, sand coat finish on outside for better adhesion to concrete, and with integral water-stop flange, stainless steel anti-vortex plate and includes integral schedule 40 PVC, coupling as shown on drawings.
13. DFAV-1412, 14" X 14" 11 gauge stainless steel anti-vortex plate 11 1/2" X 11 1/2" stainless steel frame and screen sized for 51% open area for 12" sump, black powder coat finish.
14. DFAV-2418, 24" X 24" stainless steel anti-vortex plate 17 1/2" X 17 1/2' stainless steel frame and screen sized for 51% open area for 18" sump,black powder coat finish.
15. DFGN-300, 3" N.P.T. cast bronze constructed geyser nozzle, one piece machined bronze casting with adjustable swivel.

16. DFUL-250N, 250W/120VAC Flush niche mounted UL Listed, submersible fountain light with stainless steel niche, stainless steel housing, integral cast bronze rock guard, thermal protection, clear lens, T-4 quartz halogen lamp, and 20' of type SO cord.
17. DFJB-4DB, 4-Tap underwater Deck box, cast bronze constructed with neoprene gasket and (1) 3/4" bottom tap and (4) 3/4"side.
18. DFCC-50, 1/2" Machined brass cord seals with neoprene grommet, for watertight cord entry into deck box.
19. DFPC-2123C, two part re-enterable potting compound for application in the junction boxes to provide watertight environment for electrical connections.
20. DFPN--125, 1 1/4" N.P.T. Schedule 40 stainless steel penetration nipple with integral water-stop flange. Red brass or P.V.C. will not be acceptable
21. DFPN-300, 3" N.P.T. Schedule 40 stainless steel penetration nipple with integral water-stop flange. Red brass or P.V.C. will not be acceptable
22. DFBS- 800, Cast Iron basket strainer with flat faced end connections, ANSI 125 psig rated, and 304 stainless steel basket with 1/8" perforated mesh. Strainers have a clamp cover. Sizes as shown on drawings.
23. DFBFV-X, butterfly valves for isolation and flow control, lug type, cast iron bodies, machined bronze discs, gear wheel operator, 316 stainless steel stems and EPDM seats. The companion flanges are to be heavy-duty schedule 80 PVC constructed using 304L stainless steel hardware for bolting all valves to the flanges. Sizes as shown on the drawings.
24. DFNC-X, single sphere neoprene connector, flat face flanged, with carbon steel, zinc plated flanges, a hard steel wire frame, and precision molded synthetic rubber reinforced with nylon cord.. Sizes as shown on the drawings.
25. DFCP-250, Complete control panel in weather resistant NEMA 3R enclosure, includes main breaker, motor starter, motor overload protection, timers for pumps and lights, water level controls, keyed hoa switches and pilot lights on panel door and 30 degree terminal strips for easy hook-up, surge protection. The panel is UL 508A listed as an assembly.
26. DFVG-100, Vacuum Switch and gauge panel equipped with (1) weathertight nema 4 enclosed, single pole/double throw switching element, combination vacuum switch with viton o-rings that are suitable for temperatures of 32° - 400° F. Panel also includes (1) ¾" N.P.T., glycerin liquid filled, 304 stainless steel cased pressure gauge, and (1) ¾" N.P.T., glycerin liquid filled, 304 stainless steel cased vacuum gauge.
27. DFAN-100, 3-Cup Anemometer, conduit mounted, P.V.C constructed, pulse type output. Condolet and 16/2 shielded cable to be provided by contractor.
28. DFWLS-N, Dual probe water level sensor, cast bronze and stainless steel constructed, ***probe voltage 12 volts or less, 3 wire,*** with integral wave suppression shield wall niche mounted.
29. DFDF-150, 1-1/2" N.P.T. discharge fitting, heavy-duty***, schedule 40*** stainless steel constructed with 6" x 6" adjustable ***11 gauge*** diverter plate with black powder coat finish..
30. DFFD-300, 3" N.P.T. cast bronze constructed floor drain fitting with integral waterstop flange and bronze plug. Pond area equipment will be equipped with integral stainless steel membrane clamp and fasteners.
31. DFSO-300SW, 3" F.P.T. Sidewall overflow bronze constructed with natural bronze finish mounted flat in niche.
32. DFSK-150-2, Front access skimmer with bronze faceplate, black cycolac constructed, 1-1/2" connection.
33. DFWSB-4800, 48" Dia. x 12" Wave suppression baffle, type 304 stainless steel constructed with adjustable leg stands, black powder coat finish.
34. DFBV-125, 1.25" N.P.T. Ball valve, synthetic constructed, full flow design, threaded connection.
35. DFFJ-125, 1.25" N.P.T. Water level independent Aerating Foam Jet nozzle, machined synthetic constructed with integral swivel.

36. DFST-6400, 8' x 8' x 6' subterranean equipment vault, heavy-duty fiberglass constructed with minimum (13) layers of fiberglass or a minimum of ***5/8***" thick, one-piece molded construction on bottom shell and lid. Fabricating the bottom shell from fiberglass sheets and caulking the joints will not be acceptable. The vault access hatch shall be 4' x 4' landscape access hatch, black gel-coat finish ***with (2) 60lb, carbon steel lifters mounted on aluminum brackets and bolted to the fiberglass with stainless steel lockable hardware.*** The vault is to house the feature/filter pump, filtration equipment, UL listed control panel, automatic sump pumps, exhaust fan, utility light and access ladder. The vault is pre-plumbed and pre-wired ready for installation.

37. DFSP-030-EV, Automatic/ UL listed sump pump for equipment vault, 1/3 Hp, 110V 1 phase, 1-1/2" N.P.T. discharge, cast iron motor housing, thermoplastic pump body and strainer, cast iron impeller with 10 vane vortex with pump out vanes on back side, 300 series stainless steel shaft and hardware, Buna-N o-rings, silicone carbide/silicon carbide/Buna-N single mechanical seal, 10ft. cord with plug and Pressure Grommet for sealing and strain relief, single row, ball, oil lubricated upper and lower bearing, including thermal overload protection in motor, vertical float, PVC, Snap Action level control operating at 30' shut off head. Pre-plumbed with 1 ½" Sch. 80 P.V.C. and a 1 ½" piston check valve, dark gray P.V.C. constructed true union type, EPDM O-ring seals and is rated at 150 P.S.I. at 73°F, and pre-wired in equipment vault.

B. Electrical Components: The major components to be included in the control panel and to be incorporated into a fully functional operating fountain system are specified and listed below:

1. The fountain control system shall be designed for 208 Volts, 3 phase, 4 wire service and shall operate (1) 25 Hp feature pump, (1) 3/4 Hp filter pump, (23) 250W/120V lights and appurtenances of the fountain. A conductivity type low water cut off system shall be provided to de-energize the control system during a low water level condition. The water level sensor shall also provide a separate water level control system to increase the water level before the low water cut off alarms. A condolet mounted anemometer is to be provided for wind speed compensation in conjunction with a variable frequency drive operating the feature pump controller.
2. NEMA 3R enclosure of galvanized steel construction, primed and phosphatized, finished with ANSI 49 gray baked on enamel, manufactured by Hoffman, equal to HCR series shall be provided. The enclosure shall have collar studs for sub-panel mounting, hasp and staple for padlocking, butterfly type stainless steel draw latches and hinged cover. All Hardware shall be stainless steel.
3. All components shall be mounted to a removable sub-panel. The sub-panel shall be fabricated from 14-gauge steel and shall be finished with baked on white enamel.
4. Service entrance lugs shall be provided, sized for 600 volts, 300-amp minimum. The power distribution block shall have a flammability rating of UL 94V-0, shall be based on NEC table using 75 degrees C wire and shall be equivalent to Square D class 9080.
5. A 600V lightning arrestor shall be provided and connected to the service entrance lugs.
6. Motor starters shall be IEC rated full voltage, non-reversing with thermal overload relay. Auxiliary contacts shall be provided as required for the specific control functions. Motor starters shall be as manufactured by Square 'D', Allen Bradley or pre-approved equal.
7. All 120 volt equipment shall be protected individually by thermal magnetic circuit breakers with an interrupting rating of 10KAIC @ 240 volt minimum. All circuit breakers shall be calibrated and sealed at the factory and shall be equivalent to Square D, type QOU.
8. The lighting contactors shall be 30 amps rated and shall be equivalent to Omron type g72 or equal.
9. The fountain feature / filter pump, and lights shall be controlled by individual 24-hour time clock settings. The time clocks shall be electronic with 24-hour capabilities or shall be integral to the memory module or PLC.

10. Thermal-magnetic 2-pole molded case circuit breaker. The breaker disconnects power in case of a short circuit or over amperage. Breaker is UL listed.
11. The motor and lights shall be controlled by a keyed three position selection, designated “Hand - Off - Auto”. In the “Hand” mode, the appropriate motor or set of lights shall be energized until the selection is placed in the “Off” mode. In the “Auto” mode, the appropriate motor shall be controlled by the appropriate time clock.
12. All power wiring shall be color coded using MTW #12 AWG minimum. Control wiring shall be MTW #14 AWG minimum and be numbered/lettered at each end. Wire numbers/letters shall be equivalent to Pass and Seymore “LeGrande”.
13. All wiring shall be routed through a wiring duct system to provide wire protection and an organized appearance.
14. Terminals shall be provided for interface with field-installed equipment. The terminal blocks shall be mounted on a 30-degree angle for ease of field connection. Terminals shall be equivalent to Siemens, Allen Bradley, or Square D.
15. All components shall be labeled using a laser-screened Mylar nameplate. The nameplate shall be a laminated two-part system using black letters on a white background on the door and yellow background on the back panel providing protection against fading, pealing, or warping. The labeling system shall be computer controlled to provide logos, post- script type or custom design. The use of engraved plastic type tags is not acceptable.
16. The control system shall have complete drawings/schematics using AutoCAD. The drawing shall have a complete Bill of Materials, front panel view with component locations and electrical schematic. References to the Bill of Materials shall be located for each component.
17. The control system shall be designed and manufactured to meet all state and local codes, Underwriters Laboratories and the National Electric Code (particular attention to article 430 and 680)
18. The entire control system shall bear a UL 508 serialized label “Enclosed Industrial Control Panel”. The use of the UL label “industrial control panel enclosure” without the UL 508 serialized label is not acceptable. Additionally the control panel shall bear a UL label for “Industrial Control Panel for Permanently Attached Fountains”.
19. The low water cutout system shall provide intrinsically safe voltage to the dual probe sensor. The sensor shall provide an input to the PLC to de-energize the pumps and motors. An adjustable time delay shall be provided to prevent nuisance tripping. A pilot light, rated NEMA 4X oil-tight or the HMI shall indicate this alarm as well as provide time delay values for alarm and reset.
20. The water make up system shall provide intrinsically safe voltage to the dual probe sensor. The sensor shall provide an input a PLC to energize the water make up solenoid. An adjustable time delay shall be provided to prevent nuisance tripping. A pilot light, rated NEMA 4X oil-tight or the HMI shall indicate this alarm as well as provide time delay values for alarm and reset.
21. The variable frequency drive shall be a special purpose drive with application-specific features that add significant "more-for-less" benefits. The VFD shall be as manufactured by Allen Bradley Powerflex, Siemens Micromaster 440 series, or pre-approved equal.

    a. ASICs: Application Specific Integrated Circuitry increases reliability.
    b. Dual-bridge, 12-pulse rectification. By using a phase shift input transformer with dual secondary, input current harmonic distortion factor can be reduced over 90%.
    c. Energy savings control with Automatic output voltage adjustment in response to actual motor loading. Real-time energy savings based on motor algorithms. Increases motor efficiency by several %.
    d. Simplified operator keypad with 16 function LEDs provides the perfect execution of old-fashioned simplicity of discrete indicator lights and the modern sophistication of keypad programming and control.
    e. Built-in PID control that eliminates cost of external device.

f. Built-in power consumption monitoring with built-in kW display eliminates the need for external signal conditioner.

g. Performance features:

1) Ratings: 25 HP at 208 VAC
2) Overload capacity: 120% for 60 sec (180% peak)
3) Starting torque: 150%
4) DC injection braking: ramp or coast to stop, adjustable, current limited
5) Electronic reversing
6) Adjustable accel/decel: 0.1 to 3600 sec (2 each)
7) Controlled speed range: 40:1
8) Critical frequency rejection: 2 selectable, adjustable bands
9) Torque limiting circuit: 30 to 180%
10) Drive efficiency: 96 to 98%
11) Energy saving control: improves motor efficiency
12) Displacement power factor: 0.98
13) Output frequency: 0.1 to 400 Hz
14) Frequency resolution: 0.01 Hz with digital reference, 0.06 Hz with analog reference
15) Frequency regulation: 0.01% digital (-10° to 40°C), 0.1% analog (15° to
16) 35°C)
17) Torque boost: full range, auto
18) Jog forward and reverse
19) Power loss ride-thru: 2 sec
20) Inertia ride-thru
21) Selectable auto restart after momentary power loss
22) Programmable auto restart (0 to 10 attempts) after re-settable fault
23) DC bus reactor: 30 to 125 HP at 230 VAC, 30 to 250 HP at 460 VAC

h. Design Features

1) 32-bit microprocessor logic
2) Surface mount devices
3) Carrier frequency: selectable to 15 kHz
4) Keypad operator controls
5) LED display: four digit
6) 24 VDC control logic
7) Programmable contacts, one form C and one NO
8) Timer function: contact-initiated
9) RS-232 communications port
10) Volts/hertz ratio: 15 preset and one infinitely-adjustable pattern
11) 5 Multi-speed settings
12) Remote speed reference: 0 to 10 VDC or 4 to 20 mA
13) Set-point (PID) control
14) Signal follower: bias and gain
15) Analog monitor output: 0 to 10 VDC
16) Fully EMC compliant when optional RFI filter connected
17) NEMA 1 enclosed or protected chassis
18) UL listed; IEC: 146A
19) MTBF: exceeds 28 years
20) Embedded web page for remote access and monitoring

i. Protective Features

1) DC bus CHARGE indicator

2) Optically-Isolated controls

a) Phase-to-phase / phase-to-neutral short circuit protection
b) Ground fault protection
c) Electronic motor overload (UL)
d) Current and torque limit
e) Fault circuit: over-current, over-voltage, and over-temperature Service Conditions

3) Ambient service temperature: -10°C to 40°C (104°F) NEMA 1, to 45°C (113°F) protected chassis
4) Humidity: non-condensing to 95%
5) Altitude: to 3300 ft; higher by derating
6) Input voltage: +10%/-15%, 200 to 230 VAC, 380 to 460 VAC
7) Input frequency: 50/60 Hz ± 5%
8) 3-phase, 3-wire, phase sequence insensitive

22. A programmable logic controller shall control the fountain pumps. The PLC shall be an Allen Bradley Micrologix series, Siemens 224XP series, or pre-approved equivalent.

a. Mechanical features

1) Rugged, compact plastic housing;
2) Easily accessible connection elements and controls
3) Assembly on standard horizontal or vertical;
4) Terminal block as permanent wiring assembly.

b. Design features

1) Data integrity; the user program is the most important
2) Parameter settings are stored in the internal EEPROM.
3) Built-in DC 24V sensor/load power supply for the
4) Direct connection of sensors and actuators;
5) On-board digital input/outputs (CPU with 12 inputs and 12 outputs)
6) Interrupt points;
7) High-speed counters;
8) Easy expandability;
9) 2 high-frequency pulse outputs;
10) EEPROM 16K memory sub-module with real time clock.
11) Battery module for long-term back up.
12) Embedded web page for remote access and monitoring.

c. Functions

1) Fast instruction execution; Instruction execution times of ms or 0.8
2) Extensive instruction set; A large variety of basic operations such as binary logic, result assignment, save, count, time generation, load, transfer, compare, shift, rotate, complement generation, call subroutines, integrated communications instructions and other user-friendly functions such as pulse duration modulation, pulse train function, arithmetic functions, floating-point arithmetic, PID closed-loop control, jump functions, loop functions and code conversions serve to simplify programming.
3) Counting;
4) Interrupt handling;
5) Edge-controlled interrupts

6) Time-driven interrupts
7) Counter interrupts
8) Communications interrupts.
9) Direct interrogation and driving of inputs and outputs;
10) Password protection;
11) Full access
12) Read only
13) Complete protection.
14) Debugging and diagnostic functions.
15) "Forcing" of inputs and outputs in debugging and diagnostic mode

d. Communications: The built-in PPI (point-to-point interface) provides a range of communications features.
   1. If the control panel drawings include remote communication, the avenue of connection through Ethernet through cat5 cable will be installed by contractor. The communications capabilities can range from PLC upload/download, to full HMI, VFD, and PLC monitoring and control.

23. Programming: The PLC shall be supplied with a fully functional program that shall perform basic operations including time clock settings and water level control functions.

2.2 INSTALLATION COMPONENTS

A. Piping Materials:

1. Unless architects specifications indicate otherwise, the suggested minimum piping and fitting standard recommended for this installation is Type 1.
2. All interconnecting piping and associated fittings, supplied by installing Contractor, shall be a minimum of Schedule 80 PVC, NSF-PW rated.
3. All welded PVC fittings above 6” diameter shall be fiberglass reinforced and used only on non-pressurized lines.
4. Use only clear PVC cleaner meeting NSF, UPC, and ASTM standards for cleaning and repairing PVC pipe and fitting surfaces for solvent cementing (IPS Corporation “Weld-On” Type C-65 or equivalent). Follow all directions and instructions appearing on product label.
5. Use only purple PVC primer meeting NSF, UPC, and ASTM #F-656 standards for softening and preparing field pipe and fitting surfaces for solvent cementing (IPS Corporation “Weld-On Type P-70 or equivalent). Follow all directions and instructions appearing on product label.
6. Use only clear or white, heavy bodied, medium setting PVC cement meeting NSF, UPC, and ASTM #D-2564 standards for solvent cementing PVC plastic pipe and fittings (IPS Corporation “Weld-On” Type 711 or equivalent). Follow all directions and instructions on product label.
7. Provide Link Seal for all penetrations in equipment room. All penetrations through outside walls to below grade shall be sealed per building specifications. Using “easy-link seals” is recommended
8. All piping penetrations through structure walls into open areas below pool structure must have the necessary allowances made for settlement.
9. Pipe hangers and supports per national plumbing code. All piping in open areas below the pools shall be installed free hanging from the ceiling in the level below with pipe hangers/per specifications and code
10. Reference requirements of other Project Manual Specifications for materials and items not specified herein.

11. Install Thrust Block for Piping Turns or Intersections

B. Electrical Materials:

1. Rigid conduit shall be corrosion resistant and either galvanized steel or rigid PVC as specified in Part 3 Article “Basic Electrical Methods” herein. Submit Product Data and related specifications on materials to be used. All electrical conduit and conduit fittings between submersible light fixture niches, junction boxes and control panels will be U.L. listed rigid, nonmetallic, PVC NEMA, TC-2 max. 90°C, sunlight resistant for above and below ground use. All conduits shall be protected at all times from possible water ingress. Use only approved primer and PVS glue suitable for joining all PVC conduits and fittings per manufacturer’s instructions.
2. All conductors shall be copper with insulation suitable for the particular wiring location as specified in Part 3.4 Article “Basic Electrical Methods” herein. Submit Product Data and related specifications on materials to be used underwater.
3. Reference requirements of other Project Manual Specifications for materials and items not specified herein.
4. All PVC conduit connections underground shall be SCH40 pressure fittings ((FE) male adaptors and couplings). Use color coded primer, pressure fitting PVC glue, and Teflon paste. The use of normal electrical PVC fittings is prohibited.
5. All connections in the pool/fountain shall be made with the assistance of a plumber, using Teflon paste or Teflon tape to eliminate all leaks. Use only tapered (NPT) stainless steel fittings and nipples. The use of galvanized, black, brass or steel piping is prohibited.
6. All conduit connections between dissimilar metals must be made with dielectric fittings, and sealed with dielectric thread compound to prevent galvanic degradation

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of existing elevations: Verify all joining elevations prior to laying pipe or setting pipe. Notify Fountain equipment manufacturer, Architect, and or Engineer of all discrepancies before proceeding with the construction of the fountain.

B. Verification of Dimensions: Before proceeding with any work, the contractor shall check and verify all dimensions, sizes, and the like, and shall assume full responsibility for the fitting-in of all materials and equipment to the conditions on site if the Fountain equipment manufacturer, Architect, and or Engineer is not notified in writing and a resolution is not agreed upon.

C. All conflicts relating to any penetration size, dimension, elevation, equipment location, or equipment size or dimension, shall be addressed and resolved with the manufacturer, Architect, and or Engineer of record before the contractor can proceed with the construction of any part of the fountain that may be or become affected by the confliction.

D. Verify Utilities: Contractor shall verify with local authorities where the proper tie into water for fill & make-up water, sanitary or storm sewer for overflow and drain.

E. Contractor shall verify matching voltage and phase of main power feed provided to serve the fountain equipment control panel and report all discrepancies in writing to the Fountain Manufacturer, Architect, and Engineer.

3.2 INSTALLATION

A. All equipment furnished under this Section shall be installed in full conformity with the Contract Documents, engineering data, instructions, and recommendations of the manufacturer.

B. Contractor shall obtain all necessary installation permits and inspections

C. Installation of fountain equipment appurtenances shall confirm with provisions of Reference Standards and suit existing conditions on site as approved by Architect.

D. Contractor shall insure that installation complies with all applicable national and local codes and project specifications.

E. The incoming water supply line pressure must not exceed 50 PSI and is part of the building contract, not the fountain.

F. Install horizontal piping 1' below freeze line.

G. Excavation, Backfill, and Compaction:

1. Excavating, trenching, and backfilling shall be as specified in the Contract Documents and as noted on the drawings and compaction done in a maximum of 6" lifts.

H. All pools shall be waterproofed by specified approved means.

I. Prior to any finishing materials (I.E. lights, jets, coverplates) being installed, all pools shall be tested for leaks for a minimum of 72 hours and all waterproofing and tile work shall be completed.

J. Refer to mechanical and electrical notes on drawing for further information.

K. Contractor shall field verify all dimensions.

L. Consult architectural, structural, mechanical, and electrical drawings for additional details not shown on these drawings.

M. When applicable, all weirs shall be installed with an accuracy of "+" or "-"1/16" over the entire weir length. Unless otherwise noted, refer to the architectural drawings for weir details.

N. Contractor shall provide all concrete work as required by all mechanical and electrical fountain equipment requirements including, but not limited to, housekeeping pads, lock-down slabs, and thrust blocks where indicated.

O. Contractor shall provide all utilities such as power supplies, water supplies, and sewer connections under the building contract up to the fountain controls, equipment and/or pool fittings where indicated.

P. Contractor shall provide and is responsible for all elevation and X-Y coordinates relating to all fountain equipment including vaults, pool floors, and pumps.

3.3 BASIC PIPING METHODS

A. The Contractor shall verify and confirm all piping layouts, locations, and dimensions shown in these drawings, and insure that the specified locations do not interfere with other equipment,

architecture, or construction before installation. All piping shall be installed as shown and as otherwise specified to make a complete, workable, and neat system. All piping shall be cut accurately from dimensions established at the Project site and allowances shall be made for clearance of other devices.

B. All intraconnecting piping and associated fittings, supplied by system manufacturer, shall be a minimum of Schedule 80 PVC, NSF-PW rated. Interconnecting-intraconnecting interface points shall be slip fit, threaded or flanged

C. All interconnecting piping and associated fittings, supports, and seals shall be per section 2.2 A.

D. The Contractor shall not deviate from the pipe sizes shown herein unless prior written approval is obtained from the manufacturer and Architect. When a size is not indicated, the Contractor shall request the pipe size from the fountain manufacturer. In the event that interference with other equipment or architecture requires relocation of pipes or a layout different from that shown herein, the Contractor shall notify the fountain manufacturer immediately for reexamination of hydraulic parameters of the affected sections.

E. Pipe and accessories shall be handled in such a manner to not cause damage. All cutting shall be done in a good workmanlike manner. Before installation, all piping and fittings shall be visually inspected for damage or defects. The interior of the pipe shall be clean during the laying operation. Pipe shall not be laid in water or in the trench when weather conditions are unsuitable for the work. Water shall be kept out of the trench until the pipe is installed. While work is in progress, open ends of the pipe and fittings shall be securely closed so that no trench water, earth, or other foreign matter will enter the piping system or fittings.

F. Perform adequate trenching and backfill operations when installing PVC piping below grade. Trench width should be a minimum of “pipe O.D. plus 12 inches” and deep enough to allow piping to be buried a minimum of 12” below the maximum expected frost penetration line to avoid freeze damage. Lay piping in horizontal, parallel, or perpendicular manner. Avoid vertical stacking of pipes. Space minimum of 3” apart on all parallel runs.

G. Use only clean, free-flowing, non-expansive backfill material (naturally rounded ¼” pea gravel, 8910 stone, 610 stone, or sand) and backfill in 6” lifts with adequate and complete compaction between lifts to 90% of maximum density per ASTM 1557-70. Compaction to excessive loads shall not be permitted. A second pressure test on the piping system must be made at this time to insure that piping has not been damaged during backfill operations.

H. Concrete “thrust” blocking is recommended at all directional changes (tee’s, elbows, etc.), reducer fittings and line terminations (bushings, end caps, plugs, etc.) in fountain display discharge piping 6” and larger.

I. The bearing surface for the concrete thrust blocks, where possible, should be placed against undisturbed soil. Where it is not possible, the fill between bearing surface and undisturbed soil must be compacted to at least 90% standard proctor density. Thrust block shall be a concrete mix not leaner than one part cement, two and one-half sand, and five parts stone. Contractor shall coordinate the location of the thrust block with other work and existing conditions. Work shall be performed in accordance with all applicable codes. For additional information, refer to NFPA 24.

J. The sump pump in the equipment vault shall be connected as immediately as possible after secure placement and shall have a continuous power supply for the duration of the fountain system installation process.

K. Pressure test all piping as specified in Part 3 Article “Field Quality Control” herein.

L. Avoid laying suction piping in a manner that could result in a suction loop before, during, or after backfilling and compaction. Always pitch pipe in a downward direction to avoid a suction loop that will cause air to be permanently trapped, causing loss in performance of the piping system due to increased friction and work load demand.

M. Piping in areas subject to freezing shall be installed at elevation of minimum 1 foot below frost line.

N. Do not install any water lines above the control panel.

O. Any and all costs associated with above are responsibility of installer.

3.4 BASIC ELECTRICAL METHODS

A. The information supplied in the drawings specifies the general requirements of a complete functioning electrical power distribution and control system. The electrical subcontractor shall coordinate all electrical installation activities with the Construction Manager, Contractor, Architect, and (with respect to work Phase) other separate contractors performing work related to fountain installation.

B. All electrical work shall comply with the latest edition of the National Electric Code (NEC), Section 680, published by the National Fire Protection Association; Quincy, Massachusetts. In the event of conflicting requirements between Contract Documents and any local electric code or other governing organizations for this location, the most stringent shall govern and take precedence. In this event, the Architect shall be notified immediately in writing of such conflict.

C. The installation of electrical equipment and wiring in water can produce extreme hazards. It is the responsibility of the installing electrical contractor to consult and comply with all electrical codes and safety regulations prior to installation of electrical equipment. Local codes take precedence over the general notes where discrepancies of conflicts exist.

D. All wiring and conduit shall be sized by the electrical sub-contractor in accordance with the latest edition of the NEC and all electrical codes and regulations. Where wiring and conduit sizes are specified herein, they shall be interpreted as minimum allowable sizes. All conductors shall be copper with insulation suitable for the particular wiring location. Minimum acceptable insulation is type THWN or better, suitable for both dry and wet locations. Conductor insulation shall be moisture resistant, flame-retardant thermoplastic as approved by the NEC. Conductor sizing shall be based on an ambient temperature of 30°C and a conductor temperature rating of 75°C maximum per Article 310 of NEC. All underwater electrical cable shall either be encased in waterproof, sealed PVC conduit or shall be rated for continuous operation in underwater, marine environments.

E. Contractor shall obtain all necessary installation permits and inspections.

F. It is the responsibility of the installing electrical contractor to insure that all electrical equipment is installed and wired by a qualified, licensed electrician, experienced in fountain system wiring. Delta Fountains assumes no responsibility for liability whatsoever for installations not carried out by a qualified, licensed, electrician in accordance with our shop drawings, and all provisions of the latest edition of NEC in general, Article 680 specifically, and local safety regulations. All Delta Fountains electrical control panels include GFCI's when and where required, when furnished.

G. It is the responsibility of the installing electrical contractor to verify all field dimensions critical to fountain equipment installation and performance and report any discrepancies to Delta Fountains and the engineer upon immediate notice.

H. All conductors shall be run in rigid conduit sized for the number of wires contained within per NEC requirements. Rigid conduit shall be corrosion resistant and either galvanized steel or rigid PVC. When conduit is submerged or in other wet locations, rigid PVC shall be required. Conductor sizing shall be corrected for the number of wires to be run in a single conduit or raceway in accordance with NEC. All conduit locations and routing shall be approved by the Architect before installation.

I. The work includes such necessary material and devices of a minor nature that may not be indicated on the drawings or mentioned in the specifications, but which are necessary for the compliance with codes and for the successful operation of the entire control system. The contractor shall be allowed no extra compensation because of this requirement.

J. All GFCI protected circuits must have a separate neutral. All GFCI breakers have pigtails wired to a neutral bar. A Class 'A' ground fault circuit interrupter (GFCI) must be installed in each branch circuit supplying submersible or underwater fountain equipment. Equipment operating at 15 volts or less must be protected by suitable transformer U.L. Listed and marked for the application.

K. Conduits are drawn for clarity and do not necessarily show exact routing. Contractor shall install conduits with as few changes in direction as jobsite conditions will allow.

L. All electrical equipment must be properly bonded and grounded for safety, per the latest NEC and local code requirements. All bonding lugs shall be provided by installing electrical contractor. Installing contractor shall verify all necessary requirements of local inspector before installing, and notify Delta Fountains of any required deviations from specifications or plans or notes, and resolve all conflicts before installing equipment. Contractor to insure that all bonding codes are complied with for each metal pool equipment component.

M. Submersible/underwater lighting fixtures must be installed for operation at 150 volts or less between conductors. Submersible pumps most operate at 300 volts or less between conductors.

N. Submersible lighting fixtures must be installed with the top of the fixture lens a minimum of 2" below the normal operation water level and must have the lens adequately guarded to prevent contact by any person.

O. All electrical equipment which depends on submersion for safe operation must be protected against overheating by an independent low water cutoff device if the water level drops below normal operating levels, or contain an internal Thermal Bimetallic Ambient compensating overload.

P. Maximum length of exposed submersible cord in the fountain is limited to 9 feet. Cords extending beyond fountain perimeter must be enclosed in approved wiring enclosures.

Q. All submersible lights and pumps must have sufficient cord length to allow removal from the water for re-lamping and normal maintenance. Fixtures cannot be permanently embedded in the fountain structure so that the water level must be reduced or the fountain drained for re-lamping, maintenance, or inspection.

R. Submersible equipment must be inherently stable or be securely fastened in place with non-corrosive fasteners suitable for the purpose.

S. Underwater junction boxes must be filled with an approved re-enterable electrical potting compound (wax or paraffin is not acceptable) prior to filling pool and after all circuits have been checked to prevent the entry of moisture and must be firmly attached to supports or directly to the fountain surface and bonded as required. All conduit stubbed up through pool floor must be stainless steel. PVC, Red Brass, and Everdur are not acceptable as a conduit support stub for

submersible junction boxes. All conduit entries must be completely sealed prior to potting to prevent compound from entering conduit system. After testing, junction boxes shall be sealed with scotch 3M re-enterable compound or other approved filling compound.

T. All underwater junction boxes must be equipped with threaded conduit entries and compression type cord connectors for cord entry. Strain relief connectors serving niche-Mounted underwater lights shall be capable of sealing both the fixture cord and an AWG #8 insulated bonding wire which may be required by some local codes.

U. Pull correct quantity and size conductors, wired with separate ground, through conduit into junction box. Make all splices and connections tight and well insulated. Connect ground wire to ground lug in junction box, or other suitable grounding location.

V. Insert each submersible cord through the brass cord seals provided on the junction box and tighten completely.

W. Do not operate submersible lights or pumps more than ten seconds unless completely submerged or damage will result and warranty will be voided.

X. The installing electrical contractor will verify that all electrical equipment grounds will have the same reference potential and will give evidence of such to Delta Fountains before any equipment is initially energized.

Y. The installing contractor shall size all feed-wires leading to fountain control panel for no more than 2% voltage drop, and shall notify Delta Fountains before fabricating electrical control panel if wire is upsized such that extra large wire lugs are required. It is the responsibility of electrical contractor to provide any disconnect required by local code requirements.

Z. The fountain control panel shall be adequately protected from debris and stored properly during construction and prior to initial operation and shall be vacuumed clean and all screws for terminal connections tightened.

AA. The electrical contractor shall ensure that supply voltage is within 5% of design voltage when all equipment is in operation and shall re-tap transformer, up size wire, or supply a buck and boost transformer to get supply voltage to necessary level, if necessary.

BB. Wires for water level sensors must be run in a separate conduit to the fountain control panel.

CC. All conduit penetrations through structure walls into trade areas below the pool structure must have the necessary allowances made for settlement.

DD. Floor mounted motor control centers and transformers for fountain related equipment shall be installed on a 4” concrete housekeeping pad in equipment room.

EE. Contractor installing fountain manufacturer supplied deck boxes in concrete for fountain lighting is to ensure that all open conduit ports are plugged watertight prior to slab pour around deck boxes.

FF. All penetrations through outside walls to below grade shall be sealed per building specifications. Using “easy-link-seals” is recommended.

GG. Any and all costs associated with the above are the responsibility of installing contractor.

3.5 FIELD QUALITY CONTROL

A. Inspection and Testing, General: Labor, materials, instruments, and power for testing shall be furnished by the Contractor. All tests shall be performed to the satisfaction of the Owner, Architect, and such other parties that may have legal jurisdiction. Item or system to be tested shall not be closed up, buried, or covered until testing is completed and owner confirms approval. Prepare reports of testing activities and submit as specified.

1. Reference Division 1 Section 014300 “Quality Requirements” for related and additional provisions.

B. Piping Test:

1. Conduct piping tests before joints are covered and after thrust blocks have been hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water. Flush out all pipes with clean water prior to performing leak tests.
2. Do not include equipment in tests which could be damaged by high pressure.
3. Automatic water make-up systems shall be thoroughly tested and operative at the time of final observation.
4. Pressure testing requires that a prescribed period of curing / drying time be allowed in order to allow the PVC cement to properly cure and take a permanent set. The following table sets forth the minimum drying period before the required pressure tests. Note that the table applies only to weather temperatures ranging from 50° F. to 90°F. For drying times during temperatures that differ from this, consult the fountain manufacturer.

Piping Size	**Curing Time**
1.5” – 2.5”	8 hours
3” – 4”	18 hours
6” –8”	24 hours
10” & higher	36 hours

5. A 24-hour static pressure test of 10 ft. above highest vacuum, drainage, or gravity pipe invert elevation shall be performed on all vacuum and or gravity pipe lines using water as the medium. All vacuum and gravity drain piping shall be tested with no loss of water, pressure, or noticeable leaks. All pressure testing shall include a visual check of each joint by the Contractor in the presence of Construction Manager, owner, authorized representative, and/or Architect.
6. The Contractor shall provide all pumps, pressure plugs, gauges, and other instruments and devices necessary to perform the hydrostatic pressure tests specified herein. Each complete discharge piping system shall be hydrostatically tested to a pressure of 150% of the system working pressure. For purposes of this test, system-working pressure shall be defined at 50 PSIG and the hydrostatic test shall be performed at 75 PSIG. Pressure test for at least 8 hours, at which time pressure shall remain constant, without additional pumping, pressure loss, or noticeable leaks. PSI is required on all pressure piping to include return inlets piping using water as the medium.
7. Pressure test all water piping prior to commencing backfill operations. Hydrostatic (water) testing shall be the only approved method. DO NOT PRESSURE TEST WITH COMPRESSED AIR as severe pipe damage and bodily injury can occur. Do not exceed the rated operational pressure of the piping and/or fittings carrying the lowest pressure rating. Locate and repair any leaks and retest prior to completion of backfill operations. It is recommended to leave some pressure on the piping system during backfill

operations and remaining construction activities and periodically check associated pressure gauges so that potential breaks can be identified immediately if they occur.

8. After the system has operated for one week, contractor and owner's representative shall inspect water make-up rates and agree that water usage is appropriate for a system of this type, are within local ordinances or codes, and that such rates are not indicative of excessive leakage from system. A water meter shall be placed on the fill line for this purpose, if necessary to document precise water usage.

C. Manufacturer's Field Services:

1. The fountain manufacturer shall be present for a minimum of 4 site coordination meetings, which includes the review of the plans and shop drawings with the mechanical, electrical, and structural disciplines. The fountain manufacturer must be available at the jobsite within a one week notice. The representative shall be a factory employee, and or a local sales representative.

3.6 START UP AND ADJUSTMENTS

A. Manufacturer shall be present for the initial start up of the fountain system.

B. Contractor shall adjust fountain water system for volume and water flow characteristics to reflect design intent as approved by Architect.

C. Contractor shall have the following conditions satisfied prior to departure of personnel from factory.

1. All electrical connections shall be made and tested.
2. All underwater lighting shall be lamped, installed and tested.
3. Thoroughly test all fixtures, services, and all circuits for proper operating conditions and freedom from grounds and short circuits before acceptance is requested. All equipment, appliances, and devices shall be operated under load conditions
4. All underwater junction boxes shall be wired and sealed with potting compound.
5. Pump and filter motors shall be power tested to insure proper impeller rotation at specified voltage.
6. Electronic water level control and/or low water cut-off control shall be installed and wired for operation.
7. All hydraulic lines and fittings shall be pressure tested for leaks, repaired as necessary, and flushed clean. Basket strainers shall be checked and cleaned as required.
8. All nozzles, jets, manifolds, headers, and spray apparatus shall be installed properly and flushed of debris as required. Final nozzle adjustment for position and throttling to achieved specified performance for all display discharge points to be performed by installing contractor.
9. Pump vaults, when supplied by manufacturer shall be thoroughly cleaned of debris, tested for electrical integrity and pressure tested for leaks.
10. Chemical feed system, when supplied, shall be filled to proper level with required dosage of chemicals. (Manufacturer does not supply chemicals unless specifically listed in proposal).
11. The fountain basin shall be thoroughly cleaned and filled to proper water level with clean, fresh water.
12. Contractor shall make available to factory personnel a plumber and electrician who have firsthand knowledge of the fountain installation, at contractors own expense.
13. Contractor will perform any manual labor or provide any tools for adjustment and start-up.

D. Contractor acknowledges the above requirements and understands that, should above requirements not be completed, factory personnel may immediately cancel visit and return to factory. In such case, Contractor shall be responsible for all costs and expenses incurred by manufacturer.

3.7 DEMONSTRATION

A. Furnish complete on-site instructions and demonstration to owner in the operation, adjustment and maintenance of fountain system.

END OF SECTION

THE UNIVERSITY OF ALABAMA

CERTIFICATION OF COMPLIANCE WITH THE STATE OF ALABAMA IMMIGRATION LAW

The undersigned officer of _____ (Company) certifies to the Board of Trustees of the University of Alabama that the Company does not employ an individual or individuals within the State of Alabama.

_____
SIGNATURE OF COMPANY OFFICER

_____
PRINT COMPANY NAME

_____
PRINT NAME OF COMPANY OFFICER

_____
PRINT TITLE OF COMPANY OFFICER

_____
DATE

Click any for help
Home
My Cases
New Cases
View Cases
Search Cases
My Profile
Edit Profile
Change Password
Change Security Questions
My Company
Edit Company Profile
Add New User
View Existing Users
Close Company Account
My Reports
View Reports
My Resources
View Essential Resources
Take Tutorial
View User Manual
Contact Us

Company Information

View/Edit

Company Name:

Company ID Number:

Doing Business As (DBA) Name:

DUNS Number:

Physical Location:

Address 1:

Address 2:

City:

State:

Zip Code:

County:

Mailing Address:

Address 1:

Address 2:

City:

State:

Zip Code:

Additional Information:

Employer Identification Number:

Total Number of Employees:

Parent Organization:

Administrator:

Organization Designation:

Employer Category:

Federal Contractor Category:

Employees being verified:

NAICS Code: View/Edit

Total Hiring Sites: View/Edit

Total Points of Contact: View/Edit

View MOU

THE UNIVERSITY OF
ALABAMA

DISCLOSURE STATEMENT

1. Contract/Purchase Order No. _____

2. Name of Contract/Grantee: _____
   Address: _____
   _____
   Telephone: _____
   Fax: _____

3. Nature of Contract/Grant: _____
   _____
   _____

4. Does the contractor/grantee have any relationships with any employee or official of the University, or a family member of such employee or official, that will enable such employee or official, or his/her family member, to benefit from this contract? If so, please state the names, relationships, and nature of the benefit.
   _____
   _____
   _____

(For employees of the University, family members include spouse and dependents. For members of the Board of Trustees (officials), family members include spouse, dependents, adult children and their spouses, parents, in-laws, siblings and their spouses.)

This Disclosure Form will be available for public inspection upon request.

The above information is true and accurate, to the best of my knowledge.

_____
Signature of Authorized Agent of Contractor/Grantee

Date: _____

RETURN FORM TO: The University of Alabama
Purchasing Dept.
Box 870130
Tuscaloosa, AL 35487-0130
Ph: (205) 348-5230
Fax: (205) 348-8706
www.purchasing.ua.edu